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Items 1-187

1. Epidemiology, Presentation, and Diagnosis of Celiac Disease


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PMID: 32950520
DOI: 10.1053/j.gastro.2020.06.098

Abstract

The incidence of celiac disease is increasing, partly because of improved recognition of, and testing for, the disease. The rise in incidence is also due to a real increase of this immune-based disorder, independent of disease detection. The reasons for this true rise in recent decades are unknown but may be related to environmental factors that may promote loss of tolerance
to dietary gluten. Strategies to reduce the development of celiac disease have not been proven successful in randomized trials, but the quantity of early-life gluten exposure has been a major focus of prevention efforts. The criteria for the diagnosis of celiac disease are changing, but in adults, diagnosis still depends on the presence of duodenal villous atrophy while the patient is on a gluten-containing diet, along with findings from serology analysis. Although guidelines in the United States continue to mandate a biopsy at all ages, some children receive a diagnosis of celiac disease without a biopsy. If proven accurate and scalable, assays that detect gluten-HLA tetramer complexes might be used in diagnosis to be made in the context of a gluten-free diet without intestinal biopsy.

**Keywords**: Celiac Disease; Diagnosis; Epidemiology; Gluten.

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Publication types

- Review

Full-text links

**Iron deficiency**


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Abstract

Iron deficiency is one of the leading contributors to the global burden of disease, and particularly affects children, premenopausal women, and people in low-income and middle-income countries. Anaemia is one of many consequences of iron deficiency, and clinical and functional impairments can occur in the absence of anaemia. Iron deprivation from erythroblasts and other tissues occurs when total body stores of iron are low or when inflammation causes withholding of iron from the plasma, particularly through the action of hepcidin, the main regulator of systemic iron homoeostasis. Oral iron therapy is the first line of treatment in most cases. Hepcidin upregulation by oral iron supplementation limits the absorption efficiency of high-dose oral iron supplementation, and of oral iron during inflammation. Modern parenteral iron formulations have substantially altered iron treatment and enable rapid, safe total-dose iron replacement. An underlying cause should be sought in all patients presenting with iron deficiency: screening for coeliac disease should be considered routinely, and endoscopic investigation to exclude bleeding gastrointestinal lesions is warranted in men and postmenopausal women presenting with iron deficiency anaemia. Iron
supplementation programmes in low-income countries comprise part of the solution to meeting WHO Global Nutrition Targets.

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Publication types

• Review

Full-text links

3. The overlap between irritable bowel syndrome and organic gastrointestinal diseases


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• PMID: 33189181
• DOI: 10.1016/S2468-1253(20)30212-0
Abstract

Irritable bowel syndrome (IBS) is a common functional bowel disorder characterised by symptoms of recurrent abdominal pain associated with a change in bowel habit. This condition is one of the most frequent reasons to seek a gastroenterology consultation in primary and secondary care. The diagnosis of IBS is made by identifying characteristic symptoms, as defined by the Rome criteria, and excluding organic gastrointestinal diseases that might otherwise explain these symptoms. Organic conditions that can be mistaken for IBS include coeliac disease, inflammatory bowel disease (IBD), colorectal cancer, and, in those with diarrhoea-predominant symptoms, chronic gastrointestinal infections, microscopic colitis, and primary bile acid diarrhoea. The concept of small intestinal bacterial overgrowth being associated with IBS is shrouded with controversy and uncertainty, mainly because of invalid tests due to poor sensitivity and specificity, potentially leading to incorrect assumptions. There is insufficient evidence to link IBS-type symptoms with exocrine pancreatic insufficiency or with symptomatic uncomplicated diverticular disease, since both are hampered by conflicting data. Finally, there is growing appreciation that IBS can present in patients with known but stable organic gastrointestinal diseases, such as quiescent IBD or coeliac disease. Recognising functional gut symptoms in these individuals is paramount so that potentially harmful escalations in immunosuppressive therapy can be avoided and attention can be focused on addressing disorders of gut-brain interaction. This Review endeavours to aid clinicians who practise adult gastroenterology in recognising the potential overlap between IBS and organic gastrointestinal diseases and highlights areas in need of further research and clarity.

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Publication types

- Review

Full-text links

[ELSEVIER FULL-TEXT ARTICLE]
4. **ACG Clinical Guideline: Management of Irritable Bowel Syndrome**


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- PMID: 33315591
- DOI: 10.14309/ajg.0000000000001036

**Abstract**

Irritable bowel syndrome (IBS) is a highly prevalent, chronic disorder that significantly reduces patients' quality of life. Advances in diagnostic testing and in therapeutic options for patients with IBS led to the development of this first-ever American College of Gastroenterology clinical guideline for the management of IBS using Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) methodology. Twenty-five clinically
important questions were assessed after a comprehensive literature search; 9 questions focused on diagnostic testing; 16 questions focused on therapeutic options. Consensus was obtained using a modified Delphi approach, and based on GRADE methodology, we endorse the following: We suggest that a positive diagnostic strategy as compared to a diagnostic strategy of exclusion be used to improve time to initiating appropriate therapy. We suggest that serologic testing be performed to rule out celiac disease in patients with IBS and diarrhea symptoms. We suggest that fecal calprotectin be checked in patients with suspected IBS and diarrhea symptoms to rule out inflammatory bowel disease. We recommend a limited trial of a low fermentable oligosaccharides, disaccharides, monosaccharides, polyols (FODMAP) diet in patients with IBS to improve global symptoms. We recommend the use of chloride channel activators and guanylate cyclase activators to treat global IBS with constipation symptoms. We recommend the use of rifaximin to treat global IBS with diarrhea symptoms. We suggest that gut-directed psychotherapy be used to treat global IBS symptoms. Additional statements and information regarding diagnostic strategies, specific drugs, doses, and duration of therapy can be found in the guideline.

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• 270 references

Full-text links

5. Thromboembolic complications and cardiovascular events associated with celiac disease


Authors

Fotios S Fousekis 1, Eleni T Beka 1, Ioannis V Mitselos 1, Haralampos Milionis 2, Dimitrios K Christodoulou 3
Abstract

Celiac disease (CD) is a chronic intestinal immune-mediated disease occurring in genetically susceptible individuals who are exposed to gluten. Although it primarily affects the small intestine, CD has been associated with a wide spectrum of extraintestinal manifestations, including thromboembolism and cardiovascular events. The risk of ischemic stroke, myocardial infarction, and thromboembolism, such as deep vein thrombosis and pulmonary embolism, is higher in patients with CD, while there is accumulating evidence that gluten-free diet in CD patients decreases the risk of these complications. The pathogenetic mechanism of increasing hypercoagulability in CD is multifactorial and involves hyperhomocysteinemia due to malabsorption of vitamins B12, B6, and folic acid; endothelial dysfunction; acceleration of atherosclerosis; chronic inflammation; thrombocytosis; and thrombophilia. Therefore, in cases of thromboembolic complications and cardiovascular disease of obscure etiology, clinicians' awareness of possible celiac disease is warranted.

Keywords: Atherosclerosis; Celiac disease; Extra-intestinal manifestations; Hypercoagulability; Thromboembolism.
AGA Clinical Practice Update on the Evaluation and Management of Seronegative Enteropathies: Expert Review


Authors

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PMID: 33010252
DOI: 10.1053/j.gastro.2020.08.061
Abstract

Description: Our aim was to provide a consensus statement for the best approaches for diagnosis and management of patients with suspected enteropathy, but negative results from serologic tests for celiac disease (seronegative enteropathy).

Methods: We collected findings from published cohort, case-control, and cross-sectional studies of diagnosis and case series and descriptive studies of management of patients believed to have celiac disease or other enteropathies unrelated to gluten, but negative results from serologic tests. BEST PRACTICE ADVICE 1: Review histologic findings with experienced pathologists who specialize in gastroenterology. BEST PRACTICE ADVICE 2: Serologic tests are essential for an accurate diagnosis of celiac disease. For patients with suspected celiac disease but negative results from serologic tests, total IgA level should be measured; patients should also be tested for anti-tissue transglutaminase, IgA against deamidated gliadin peptide, and endomysial antibody (IgA). Patients with total IgA levels below the lower limit of detection and IgG against tissue transglutaminase or deamidated gliadin peptide, or endomysial antibody, should be considered to have celiac disease with selective IgA deficiency rather than seronegative celiac disease. BEST PRACTICE ADVICE 3: Patients' diets should be carefully reviewed and duodenal biopsies should be collected and analyzed at the time of serologic testing to determine exposure to gluten and accuracy of test results. BEST PRACTICE ADVICE 4: Thorough medication histories should be collected from patients, with attention to angiotensin II receptor blockers, such as olmesartan, along with travel histories to identify potential etiologies of villous atrophy. This will guide additional testing. BEST PRACTICE ADVICE 5: Patients should be analyzed for disease-associated variants in human leukocyte antigen genes; results must be carefully interpreted. Negative results can be used to rule out celiac disease in seronegative patients. BEST PRACTICE ADVICE 6: Patients with suspected celiac disease who are seronegative but have villous atrophy and genetic risk factors for celiac disease must undergo endoscopic evaluation after 1-3 years on a gluten-free diet to evaluate improvements in villous atrophy. A diagnosis of seronegative celiac disease can then be confirmed based on clinical and histologic markers of improvement on the gluten-free diet. BEST PRACTICE ADVICE 7: Seronegative patients with an identified cause for enteropathy should be treated accordingly; a follow-up biopsy might or might not be necessary. BEST PRACTICE ADVICE 8: Patients with persistent
signs and symptoms who do not respond to a gluten-free diet, and for whom no etiology of enteropathy is ultimately identified, should be treated with budesonide.

**Conclusions:** These best practice guidelines will aid in diagnosis and management of patients with suspected celiac disease, but negative results from serologic tests.

**Keywords:** CeD; Celiac; GFD; tTg.

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Publication types

- Practice Guideline

Full-text links

7. **Current applications of gluten-free grains - a review**


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- PMID: 31965815
- DOI: 10.1080/10408398.2020.1713724
Abstract

The population of Americans suffering from celiac, gluten intolerance, and wheat allergy is 1 in every 14 people. Also, many are choosing gluten-free (GF) diets nowadays because of the perception that it is a healthier option for them. Therefore, in the last decade, the GF market in the US and all over the world has seen significant growth. Globally, GF product sales reached 4.63 billion USD in 2017, and are expected to reach 6.47 billion USD by 2023, a projected compound annual growth rate of 7.6%. Several grains like millet, corn, sorghum, and pseudocereals like amaranth, quinoa, and teff are the main ingredients for a gluten diet. Though most of them have a comparable nutrient profile as common grains, the main challenge to their acceptability is the quality departure from gluten-containing counterparts and imbalance nutrients that ensue when food processing aids like starch, gums, and enzymes are used. In this review, we profiled some of the common grains, their characteristics, functionality and the various food types they are used for. We also reviewed the impact of some of the current food processing aids like starch, hydrocolloids used for improving functionality, and processing techniques like extrusion suitable for making remarkable GF foods.

Keywords: Bread; gluten-free; grain; hydrocolloids; pasta; starch.

Publication types

Review

MeSH terms

- Bread / analysis
- Celiac Disease*
- Chenopodium quinoa*
- Diet, Gluten-Free
- Edible Grain
- Glutens
- Humans

Substances
8. A fluorogenic capped mesoporous aptasensor for gluten detection


Authors

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Abstract

Celiac disease is a complex and autoimmune disorder caused by the ingestion of gluten affecting almost 1% of global population. Nowadays an effective treatment does not exist, and the only way to manage the disease is the removal of gluten from the diet. Owing the key role played by gluten, clear and regulated labelling of foodstuff and smart methods for gluten detection are needed to fight frauds on food industry and to avoid the involuntary ingestion of this protein by celiac patients. On that scope, the development of a novel detection system of gluten is here presented. The sensor consists of nanoporous anodic alumina films loaded with a fluorescent dye and capped with an aptamer that recognizes gliadin (gluten's soluble proteins). In the presence of gliadin, aptamer sequences displace from the surface of anodic alumina resulting in pore opening and dye delivery. The dispositive shows a limit of detection (LOD) of 100 μg kg⁻¹ of gliadin, good selectivity and a detection time of approximately 60 min. Moreover, the sensor is validated in real food samples. This novel probe allows fast gluten detection through a simple signalling process with potential use for food control.

Keywords: Aptamers; AptaSensor; Gluten; Mesoporous supports; Molecular gates.

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Conflict of interest statement

Declaration of competing interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Full-text links

9. Chemical modifications and their effects on gluten protein: An extensive review


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PMID: 33268180
DOI: 10.1016/j.foodchem.2020.128398

Abstract

Gluten protein as one of the plant resources is susceptible to genetic, physical, chemical, enzymatic and engineering modifications. Chemical modifications have myriad advantages over other treatments, including short reaction times, low cost, no requirement for specialized equipment, and highly clear modification effects. Therefore, chemical modification of gluten can be mainly conducted via acylation, glycosylation, phosphorylation, and deamidation. The present review investigated the impact of different chemical compounds on
conformations of gluten and its subunits. Moreover, their effects on the physico-chemical, morphological, and rheological properties of gluten and their subunits were studied. This allows for the use of gluten for a variety of purposes in the food and non-food industry.

**Keywords:** Chemical modifications; Conformation; Gluten; Physico-chemical properties.

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10. **Mucosal penetration and clearance of gluten and milk antigens in eosinophilic oesophagitis**


**Authors**

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- PMID: 33264440
- DOI: 10.1111/apt.16180

**Abstract**

**Background:** The Th2 allergic pathway in eosinophilic oesophagitis (EoE) responds to food antigen exposure.

**Aim:** To compare the presence and temporal pattern of food antigen penetration in oesophageal mucosa in active and inactive EoE and controls

**METHODS:** Thirty-two patients with EoE (20 active) and 10 controls were asked to eliminate all wheat and/or dairy 12, 24, 48, 72 or 96 hours before endoscopy. Immunostaining on endoscopic biopsies was performed for gliadin, casein and whey.

**Results:** Gluten, casein and whey were detected by positive staining in 17/32 (53.1%), 21/32 (65.6%), and 30/32 (92.0%) of patients, respectively. In active
vs inactive EoE, 70.0% vs 25.0% (P < 0.05), 80.0% vs 41.5%, and 90.0% vs 90.9% patients had detectable gliadin, casein and whey, respectively. Casein and whey (20.0% and 100%, respectively) but not gliadin, were present in controls. The gliadin staining density was greater in active compared to inactive disease at ≤ 24 vs >24 hours after exposure (P = 0.05) but no differences were detected when comparing active and inactive patients for casein and whey. There was greater staining density for whey than casein for all patients at ≤24 hours (mean 2.14 ± 0.91 and 1.07 ± 1.33, P = 0.02). In active EoE, IgG4 was present in 14/20 compared to one inactive patient.

**Conclusion:** The oesophageal epithelium is selectively permeable and has relatively long dwell times for food antigens known to trigger EoE. The precise mechanism of antigen-specific mucosal entry and the factors that determine the induction or effector trigger of the Th2 pathway activation merit further study.

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- 24 references

11. **Determinants of gluten-free diet adoption among individuals without celiac disease or non-celiac gluten sensitivity**


**Authors**

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Abstract

**Objectives:** Gluten-free (GF) foods are typically less nutritious and more expensive than their gluten-containing variants, yet people without a diagnosed gluten sensitivity continue to adopt this diet. There is a lack of research about what factors drive people without Celiac disease or non-Celiac gluten sensitivity to follow the GF diet.

**Methods:** A nationally representative sample of 2982 US residents without a diagnosed gluten sensitivity were surveyed about their attitudes, perceptions, and experiences with the GF diet. Logistic regression was used to compare respondents who were currently avoiding or had avoided gluten previously (GF consumer) to respondents who had never tried a GF diet (non-GF consumer).

**Results:** Over one-fifth of respondents were GF consumers. Beliefs that a gluten-reduced diet is healthier (OR 1.69; 95% CI [1.30,2.18]), that GF products are more nutritious (OR 1.46, 95% CI [1.11,1.90]), and that a GF diet can help clear acne (OR 1.46; 95% CI [1.13,1.88]) were all positively associated with trying a GF diet. Personal research was the most influential source of information associated with trying a GF diet (OR 2.92; 95% CI [1.91,4.52]). This was followed by "healthcare center or health professional" (OR 2.57; 95% CI [1.71,3.90]. Respondents who were never encouraged to try the GF diet were less likely to try the diet (OR 0.33, 95% CI [0.23,0.46]).

**Conclusions:** Positive, but scientifically unsubstantiated, beliefs about the benefits of the GF diet were strongly associated with trying a GF diet, and the source of recommendation to try a GF diet was important.
Keywords: Belief; Consumer behavior; Gluten-free; Information source; Knowledge; Popular diet.

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Publication types

- Research Support, U.S. Gov't, Non-P.H.S.
- Research Support, Non-U.S. Gov't

Full-text links

12. Review article: exposure to microbes and risk of coeliac disease


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Abstract

Background: Coeliac disease is an immune-mediated intestinal disease characterised by lifelong intolerance to dietary gluten in genetically predisposed individuals. Microbial factors including infections or bacterial microbiota have long been suspected to be involved in the aetiology, but the scientific literature on the topic is scattered and heterogeneous.

Aims: To review human observational studies on microbes and coeliac disease

METHODS: We identified 135 publications judged relevant. Most studies were cross-sectional, and prone to reverse causation and other biases. Only a few were prospective. Cohort studies and longitudinal studies that have sampled biological specimens before disease onset are emphasised in the review.

Results: Infections during early childhood were associated with an increased risk of subsequent coeliac disease in nine studies, whereas maternal infections during pregnancy did not show a clear association. For the most frequently studied microbial factors, some evidence for an association was found, including Helicobacter pylori (four out of 16 studies), adenovirus (two out of nine studies) and enterovirus (two out of six studies). Rotavirus infections have been associated with disease development, and rotavirus vaccination may reduce the risk. Among the many studies of gut microbiota, most were cross-sectional and, therefore, potentially influenced by reverse causation. Only two smaller prospective case-control studies with sampling before disease onset were identified; they reported inconsistent findings regarding the faecal microbiome.

Conclusions: Several microbes are potentially linked to coeliac disease. As microbial factors are amenable to interventions, larger prospective studies are still warranted.

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13. **Oral manifestations of celiac disease in French children**


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- PMID: 33341334
- DOI: 10.1016/j.arcped.2020.11.002

**Abstract**

Celiac disease (CD) is an immune-mediated systemic disorder caused by ingestion of the gluten found in wheat, rye, and barley. The currently estimated prevalence in children is about 1%. CD is a chronic enteropathy with gastrointestinal manifestations including diarrhea, abdominal distension and weight loss, but extra-intestinal features are increasingly being reported.
Dental and oral manifestations such as dental enamel defects (ED), delay in dental eruption, and recurrent aphthous stomatitis (RAS) are well-recognized manifestations of CD. The aim of this study was to compare the frequency of oral manifestations (ED, RAS and delay in dental eruption) on deciduous and permanent teeth between children with CD and a control population. An oral examination was performed on 28 CD children and 59 control children. All children were younger than 12 years old and had deciduous or mixed dentition. CD children had significantly more ED and RAS than the control group (67.9% vs. 33.9% P=0.004 and 50.0% vs. 21.8% P=0.011, respectively). No delay in dental eruption was observed in CD children. ED were mainly grade I and II of Aine's classification (color defects and slight structural defects). ED were more often seen on CD children's deciduous teeth than on permanent teeth (57.1% and 13.6%, respectively; P<0.001). The main teeth affected by ED are the second molar and canines of the deciduous teeth, and the first molar, central incisor, and lateral incisors of the permanent teeth. RAS and ED that were symmetrical in all quadrants and occurred firstly in teeth that mineralize during the first year of life both seem to be signs of CD. Thus, more information for dentists and pediatricians on these oral manifestations should help improve detection of CD.

**Keywords:** Celiac disease; Deciduous teeth; Delay in dental eruption-prevalence; Dental enamel defect; Recurrent aphthous stomatitis.

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**Full-text links**

[ELSEVIER FULL-TEXT ARTICLE](#)

**14.** [On the diagnosis of childhood coeliac disease: Past and present](#)


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PMID: 32740975
PMCID: PMC7818236
DOI: 10.1111/apa.15512

Free PMC article
No abstract available

Conflict of interest statement

The authors have no conflicts of interest to declare.

5 references

Full-text links

15. Gluten neuropathy: electrophysiological progression and HLA associations


Authors

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Affiliations
Abstract

**Objective:** Gluten neuropathy (GN) is the term used to describe peripheral neuropathy that occurs in patients with gluten sensitivity (GS) or coeliac disease (CD) in the absence of other risk factors. We aimed to describe the neurophysiological progression rate of GN across time and look into the potential role of genetic susceptibility in its development.

**Methods:** This is a cohort study of 45 patients with GN with a mean follow-up period of 8 ± 5 years. The assessments included clinical and neurophysiological data and HLA-DQ genotyping.

**Results:** The mean age at diagnosis was 60 ± 12 years. The majority of patients had a length-dependent neuropathy (75.6%), whereas the rest were diagnosed with sensory ganglionopathy (SG). DQA1*02-positive patients were more likely to suffer with SG compared to the DQA1*02 negative patients (60% versus 13.8%, p = 0.009). There was also a trend for statistical significance regarding the DQB1*06 allele and the DQA1*01/DQB1*06 haplotype were found more frequently in patients with GN than in healthy controls (p = 0.026 and p = 0.047, respectively). A linear effect of time on the neurophysiological findings was found in radial sensory nerve action potential (1.9% mean annual decrement, p = 0.036), sural sensory nerve action potential (3.3% mean annual decrement, p = 0.013) and tibial nerve motor compound action potential (6.5% mean annual decrement, p < 0.001) amplitudes, independently from age or gender.
Conclusions: GN is a late manifestation of GS and CD. The majority of patients have the length-dependent neuropathy with a linear deterioration over time. HLA genotyping of GS and CD patients who suffer from neuropathic symptoms is recommended as it can help identifying patients at risk for developing SG.

Keywords: Coeliac disease; Gluten sensitivity; HLA genotyping; Peripheral neuropathy; Progression.

• 23 references

Full-text links

16. Exploration of the functionality of sugars in cake-baking, and effects on cake quality


Authors

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PMID: 32090597
DOI: 10.1080/10408398.2020.1729694

Abstract

This review paper describes our exploratory experimental studies on the functionality of sucrose and other sugars in cake-baking, and effects on cake quality. We have used the American Association of Cereal Chemists Method 10-90.01 as a base cake-baking method, and have applied Differential Scanning Calorimetry, Rapid Visco-Analyzer, and time-lapse photography.
analyses in experimental design studies of the effects of the following ingredient and formulation variables on cake quality (e.g. texture, color, moisture content) and other finished-product properties (e.g. shape, dimensions): (a) cake formula levels of sucrose and water, in terms of %Sucrose and Total Solvent; (b) concentration of sucrose or other sugars (e.g. xylose, ribose, fructose, glucose, maltose, polydextrose) vs. wheat flour starch gelatinization temperature and starch pasting during baking and gluten development during mixing; (c) unchlorinated flour vs. chlorinated flours (of varying pH); (d) cake formula %Sucrose and TS vs. cake color, shape, and dimensions; (e) cakes formulated with sucrose or other sugars (i.e. xylose, fructose, glucose), and variable %S and TS, and unchlorinated or chlorinated flour (pH 4.6), vs. cake color, shape, and dimensions.

**Keywords:** Cake-baking; DSC; RVA; time-lapse photography; starch gelatinization; chlorinated/unchlorinated flours; cake formula; cake properties; cake quality; sucrose/sugars functionality.

**Publication types**
- Review

**MeSH terms**
- Flour*
- Glutens
- Starch
- Sugars*
- Triticum

**Substances**
- Sugars
- Glutens
- Starch

**Full-text links**
[View full text]
Pentafurcated Celiac Trunk


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DOI: 10.1016/j.avsg.2020.08.007

Abstract

**Background:** Commonly, but not exclusively, the celiac trunk (CT) trifurcates into the left gastric (LGA), common hepatic (CHA) and splenic (SA) arteries. Additional branches of the CT are scarcely reported in the literature. Less than ten reports were found presenting patterns of pentafurcation of the CT (pCT), all being resulted after anatomic dissections.

**Method:** We hereby report such a rare pCT, which was found on the computed tomography angiograms of a 71-year-old female patient.

**Results:** From that pCT were branching off three collateral branches, two ascending and one descending, and two terminal branches. The ascending ones were the left inferior phrenic artery and a secondary hepatogastric trunk, further divided into a replaced left hepatic artery and the left gastric artery. The dorsal pancreatic artery was the descending collateral branch of the pCT. The pCT ended by dividing into the CHA and SA. The CHA reached the anterior side of the portal vein to divide into the gastroduodenal and right hepatic
arteries. An accessory right hepatic artery left the superior mesenteric artery (SMA) and ascended posterior to the portal vein.

**Conclusions:** To the authors' knowledge, the combination of a pCT and a hepatic branch from the SMA, which raises to three the main arteries of the liver, was not reported previously. Additional branches of the CT should be carefully documented by computed tomography prior to surgical or interventional approaches of the aorta in the celiac region.

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**Publication types**

- Case Reports

**MeSH terms**

- Aged
- Celiac Artery / abnormalities*
- Celiac Artery / diagnostic imaging
- Celiac Artery / physiopathology
- Collateral Circulation
- Computed Tomography Angiography
- Female
- Hepatic Artery / abnormalities*
- Hepatic Artery / diagnostic imaging
- Hepatic Artery / physiopathology
- Humans
- Multidetector Computed Tomography
- Splanchnic Circulation

**Full-text links**

[ELSEVIER FULL-TEXT ARTICLE]

18. **Celiac Disease Complicated by Rhabdomyolysis**
At 37 years old, a patient developed chronic watery diarrhea, generalized pain, severe hypokalemia and elevated creatine kinase levels. She was thought to have rhabdomyolysis due to hypokalemia from chronic diarrhea. No organic cause was found. Her symptoms subsided with potassium correction, but hypokalemia persisted; she visited our hospital at 44 years old. Endoscopy detected prominent atrophy of the intestinal villi. Histology indicated Marsh-Oberhuber type-3b disease. Anti-gliadin and anti-tissue transglutaminase IgA antibody tests were positive. She was diagnosed with celiac disease and started on a gluten-free diet, which improved her symptoms. This report is only the tenth of its kind worldwide.

**Keywords:** celiac disease; hypokalemia; rhabdomyolysis.

**Full-text links**

19. [High-resolution genotyping indicates that children with type 1 diabetes and celiac](#)
Type 1 diabetes (T1D) and celiac disease (CD) share common genetic loci, mainly within the human leukocyte antigen (HLA) class II complex. Extended genotyping of HLA class II alleles and their potential risk for developing both diseases remains to be studied. The present study compared extended HLA-class II gene polymorphisms in children with T1D, CD, and a subgroup diagnosed with both diseases (T1D w/CD). Next-generation targeted sequencing (NGTS) of HLA-DRB3, DRB4, DRB5, DRB1, DQA1, DQB1, DPA1, and DPB1 alleles from DNA collected from 68 T1D, 219 CD, and seven T1D w/CD patients were compared with 636 HLA-genotyped Swedish children from the general population selected as controls. In comparison to controls, the DRB4*01:03:01 allele occurred more frequently in T1D w/CD (odds ratio (OR) = 7.84; 95% confidence interval (95% CI) = (2.24, 34.5), \( P = 0.0002 \)) and T1D
(OR = 3.86; 95% CI, (2.69, 5.55), P = 1.07 × 10^{-14}), respectively. The DRB3*01:01:02 allele occurred more frequently in CD as compared to controls (OR = 7.87; 95% CI, (6.17, 10.03), P = 4.24 × 10^{-71}), but less frequently in T1D (OR = 2.59; 95% CI, (1.76, 3.81), P = 7.29 × 10^{-07}) and T1D w/CD (OR = 0.87; 95% CI, (0.09, 3.96), P ≤ 0.999). The frequency of the DRB4*01:03:01-DRB1*04:01:01-DQA1*03:01:01-DQB1*03:02:01 (DR4-DQ8) haplotype was higher in T1D w/CD (OR = 12.88; 95% CI (4.35, 38.14) P = 3.75 × 10^{-9}), and moderately higher in T1D (OR = 2.13; 95% CI (1.18, 3.83) P = 0.01) compared with controls, but comparable in CD (OR = 1.45; 95% CI (0.94, 2.21), P = 0.08) and controls. Children with T1D and CD are associated with DRB4*01:03:01, DRB3*01:01:02, and DRB3*02:02:01 of which DRB4*01:03:01 confers the strongest risk allele for developing T1D w/CD.

**Keywords:** HLA; celiac disease; children; next-generation sequencing; type 1 diabetes.

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**Conflict of interest statement**

The authors have declared no conflicting interests.

- 37 references

**Grant support**

- Skåne County Council’s Research and Development Foundation
- Swedish Research Foundation; Skåne University Hospital Foundation.

**Full-text links**

20. Enhanced expression of immune checkpoint receptors during SARS-CoV-2 viral infection
The immune system is tightly regulated by the activity of stimulatory and inhibitory immune receptors. This immune homeostasis is usually disturbed during chronic viral infection. Using publicly available transcriptomic datasets,
we conducted in silico analyses to evaluate the expression pattern of 38 selected immune inhibitory receptors (IRs) associated with different myeloid and lymphoid immune cells during coronavirus disease 2019 (COVID-19) infection. Our analyses revealed a pattern of overall upregulation of IR mRNA during severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. A large number of IRs expressed on both lymphoid and myeloid cells were upregulated in nasopharyngeal swabs (NPSs), while lymphoid-associated IRs were specifically upregulated in autopsies, reflecting severe, terminal stage COVID-19 disease. Eight genes (BTLA, LAG3, FCGR2B, PDCD1, CEACAM1, CTLA4, CD72, and SIGLEC7), shared by NPSs and autopsies, were more expressed in autopsies and were directly correlated with viral levels. Single-cell data from blood and bronchoalveolar samples also reflected the observed association between IR upregulation and disease severity. Moreover, compared to SARS-CoV-1, influenza, and respiratory syncytial virus infections, the number and intensities of upregulated IRs were higher in SARS-CoV-2 infections. In conclusion, the immunopathology and severity of COVID-19 could be attributed to dysregulation of different immune inhibitors. Targeting one or more of these immune inhibitors could represent an effective therapeutic approach for the treatment of COVID-19 early and late immune dysregulations.

**Keywords:** CEACAM1; COVID-19; SARS-CoV-2; SIGLEC10; immune checkpoint inhibitors; immune inhibitory receptors; influenza A virus; lung autopsies; respiratory viral infection; sialic acid.

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**Conflict of interest statement**

The authors declare no competing interests.

- 123 references
- 5 figures

**Full-text links**

![CellPress OPEN ACCESS](https://cellpress.org)
![PMC FULL TEXT](https://www.ncbi.nlm.nih.gov/pmc)
Properties of flour from pearled wheat kernels as affected by ozone treatment


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DOI: 10.1016/j.foodchem.2020.128203

Abstract

Two different pearling degrees of wheat kernels (lightly-pearled: 14.4% and heavily-pearled: 38.9%) and un-pearled kernels were treated with ozone and evaluated for flour compositions and properties. Ozonation did not change
main compositions and damaged starch content of three kernels' flours. Flour brightness of all three kernels was improved after ozone treatment. Ozonation enhanced the dough strength of the flours from un-pearled and pearled kernels and the effect elevated with increasing pearling degree. Ozone treatment increased the peak viscosity of flour and the level of increase in heavily-pearled kernels was greater than un-pearled and lightly-pearled. Ozonation resulted in an increase in the insoluble protein polymer content of heavily-pearled kernels' flour, but only had a slight effect on un-pearled lightly-pearled kernels. After ozone treatment, un-pearled and lightly-pearled kernels exhibited increases in molecular weight of starch, but heavily-pearled resulted in the opposite trend.

**Keywords:** Dough property; Ozone; Pasting property; Wheat.

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**MeSH terms**

- Flour / analysis*
- Glutens / analysis
- Molecular Weight
- Ozone / chemistry*
- Starch / analysis
- Triticum / metabolism*
- Viscosity

**Substances**

- Ozone
- Glutens
- Starch

**Full-text links**

[ELSEVIER FULL-TEXT ARTICLE](#)

22. **Genome-Wide Transcriptomic Analysis of Intestinal Mucosa in Celiac Disease**
Patients on a Gluten-Free Diet and Postgluten Challenge


Authors

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Abstract

Background & aims: Gluten challenge studies are instrumental in understanding the pathophysiology of celiac disease. Our aims in this study were to reveal early gluten-induced transcriptomic changes in duodenal biopsies and to find tools for clinics.

Methods: Duodenal biopsies were collected from 15 celiac disease patients on a strict long-term gluten-free diet (GFD) prior to and post a gluten challenge (PGC) and from 6 healthy control individuals (DC). Biopsy RNA was subjected to genome-wide 3' RNA-Seq. Sequencing data was used to determine the differences between the three groups and was compared to sequencing data from the public repositories. The biopsies underwent morphometric analyses.

Results: In DC vs. GFD group comparisons, 167 differentially expressed genes were identified with 117 genes downregulated and 50 genes upregulated. In PGC vs. GFD group comparisons, 417 differentially expressed genes were identified with 195 genes downregulated and 222 genes upregulated. Celiac disease patients on a GFD were not "healthy". In particular, genes encoding proteins for transporting small molecules were expressed less. In addition to the activation of immune response genes, a gluten challenge induced hyperactive intestinal wnt-signaling and consequent immature crypt gene expression resulting in less differentiated epithelium. Biopsy gene expression in response to a gluten challenge correlated with the extent of the histological damage. Regression models using only four gene transcripts described 97.2% of the mucosal morphology and 98.0% of the inflammatory changes observed.

Conclusions: Our gluten challenge trial design provided an opportunity to study the transition from health to disease. The results show that even on a strict GFD, despite being deemed healthy, patients reveal patterns of ongoing disease. Here, a transcriptomic regression model estimating the extent of gluten-induced duodenal mucosal injury is presented.
Keywords: Celiac Disease; Gluten Challenge; Gluten-Free Diet; Morphometry; RNA-Seq.

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- Cited by 1 article
- 69 references
- 12 figures

Full-text links

23. Prevalence of Inflammatory Bowel Disease and Celiac Disease in Patients with IgA Nephropathy over Time


Authors

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PMID: 33271538
Abstract

Introduction: IgA nephropathy (IgAN) has been connected with increased intestinal permeability and subclinical intestinal mucosal inflammation as well as with inflammatory bowel disease (IBD) and celiac disease - nevertheless, the results are controversial. The prevalence of bowel diseases has increased over time in Western populations. Whether similar trend is seen among IgAN patients remains obscure. Our aim was to study the prevalence of IBD and celiac disease in IgAN patients over time.

Methods: The study cohort consisted of altogether 629 patients with newly diagnosed IgAN during years 1976-2012. Data on diagnosis of IBD and celiac disease were retrospectively collected from medical records. Further, to detect unrecognized celiac disease, IgA-class tissue transglutaminase antibodies (tTGA) were measured from serum samples taken at the time of kidney biopsy during years 1980-2012 (defined as screen-detected celiac disease autoimmunity).

Results: The prevalence of IBD among IgAN patients increased over time from 0 to 4.4%, while the prevalence of clinically diagnosed celiac disease decreased from 2.6 to 0.6%. Moreover, the number of screen-detected tTGA-positive cases decreased from the 1980s to the 21st century (2.8-0.7%).

Conclusion: The prevalence of IBD increased over time in IgAN patients, which exceeds the prevalence of 0.6% in Finnish general population. In parallel, the prevalence of celiac disease and screen-detected celiac disease autoimmunity decreased over time. The coexistence of IBD and IgAN is not negligible. Whether this finding is caused by the increase in the prevalence of IBD in the population or shared pathophysiology between IgAN and IBD remains a matter of further studies.

Keywords: Celiac disease; IgA nephropathy; Inflammatory bowel disease; Prevalence; Tissue transglutaminase antibodies.

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Full-text links
24. **Fracture risk assessment in celiac disease: a registry-based cohort study**


**Authors**

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- 7 NIHR Southampton Biomedical Research Centre, University of Southampton and University Hospital Southampton NHS Foundation Trust, Southampton, UK.

- PMID: 32748311
- DOI: 10.1007/s00198-020-05579-7

**Abstract**

Celiac disease is associated with an increased fracture risk but is not a direct input to the FRAX® calculation. When celiac disease is considered as a
secondary osteoporosis risk factor or BMD is included in the FRAX assessment, FRAX accurately predicts fracture risk.

**Introduction:** The fracture risk assessment tool (FRAX®) uses clinical factors and bone mineral density (BMD) measurement to predict 10-year major osteoporotic (MOF) fracture probability. The study aim was to determine whether celiac disease affects MOF risk independent of FRAX score.

**Methods:** The Manitoba BMD Registry includes clinical data, BMD measurements, 10-year probability of MOF calculated for each individual using the Canadian FRAX tool and diagnosed celiac disease. Using linkage to population-based healthcare databases, we identified incident MOF diagnoses over the next 10 years for celiac disease and general population cohorts.

**Results:** Celiac disease (N = 693) was associated with increased fracture risk adjusted for FRAX score computed without secondary osteoporosis or BMD (adjusted hazard ratio [HR] 1.43, 95% confidence interval [CI] 1.11-1.86). Celiac disease was no longer a significant risk factor for fracture when secondary osteoporosis or BMD were included in the FRAX calculation (p > 0.1). In subjects with celiac disease, each SD increase in FRAX score (calculated with and without secondary osteoporosis or BMD) was associated with higher risk of incident MOF (adjusted HR 1.66 to 1.80), similar to the general population (p-interaction > 0.2). Including celiac disease as secondary osteoporosis or including BMD in FRAX 10-year MOF probability calculations (10.1% and 8.6% respectively) approximated the observed cumulative 10-year MOF probability (10.8%, 95% CI 7.8-13.9%).

**Conclusions:** Celiac disease is associated with an increased risk of major osteoporotic fractures. When celiac disease is considered as a secondary osteoporosis risk factor or BMD is included in FRAX assessment, FRAX accurately predicts fracture risk.

**Keywords:** Celiac disease; Epidemiology; FRAX score; Major osteoporotic fracture risk; Osteoporosis.

- 27 references

**Full-text links**

[SpringerLink](https://link.springer.com/article/10.1007/s10438-021-03432-7)
25. **Prevalence of celiac disease in patients with short stature: A systematic review and meta-analysis**


**Authors**

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- PMID: [32621396](https://pubmed.ncbi.nlm.nih.gov/32621396/)
- DOI: [10.1111/jgh.15167](https://doi.org/10.1111/jgh.15167)

**Abstract**

**Background and aim:** Short stature is a common extraintestinal manifestation of celiac disease (CeD). We conducted a systematic review and meta-analysis to assess the global prevalence of CeD in patients presenting with short stature.

**Methods:** We searched Medline and EMBASE databases for the keywords "celiac disease, coeliac disease, anti-gliadin, tissue transglutaminase antibody, anti-endomysial antibody, short stature and growth retardation." All the studies published from January 1991 to May 2020 were included. Patients without any prior evaluation for short stature were classified as all-cause short
stature, while prior evaluated patients, where no cause was found for short stature, were classified as idiopathic short stature. The diagnosis of CeD was based on the European Society for Paediatric Gastroenterology, Hepatology and Nutrition guidelines. A random-effects model was used to pool the data.

Results: Seventeen studies screening 3759 patients (1582 with all-cause short stature and 2177 with idiopathic short stature) were included. The pooled seroprevalence of CeD based on positive anti-tissue transglutaminase antibody and anti-endomysial antibody was 11.2% (95% CI 4.0-21.2%; \( I^2 = 86\% \)) and 9.7% (95% CI 2.7-20.2%; \( I^2 = 95\% \)) for all-cause and idiopathic short stature, respectively. Similarly, pooled prevalence of biopsy-confirmed CeD was 7.4% (95% CI 4.7-10.6%; \( I^2 = 76\% \)) and 11.6% (95% CI 4.1-22.2%; \( I^2 = 97\% \)), for all-cause and idiopathic short stature, respectively. There was an overall severe risk of selection bias and significant heterogeneity in the pooled results.

Conclusions: Approximately one in 14 patients with all-cause short stature and one in nine patients with idiopathic short stature had biopsy-confirmed CeD. Therefore, evaluation for CeD may be prudent in all patients with short stature.

Keywords: Celiac disease; Enteropathy; Growth retardation; Idiopathic short stature; Prevalence.

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- 68 references

Full-text links

26. Sprouted oat as a potential gluten-free ingredient with enhanced nutritional and bioactive properties

Authors

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DOI: 10.1016/j.foodchem.2020.127972

Abstract

This study is aimed to produce and characterize a novel gluten-free ingredient from oat through sprouting at 18 °C for 96 h. The nutritional and bioactive properties as well as key enzymatic activities were studied in sprouted oat powder and compared with those of oat grain powder (control). Sprouted oat powder was an excellent source of protein (10.7%), β-glucan (2.1%), thiamine (687.1 μg/100 g), riboflavin (218.4 μg/100 g), and minerals (P, K, Mg and Ca), and presented better amino acid and fatty acid compositions and levels of γ-aminobutyric acid (54.9 mg/100 g), free phenolics (507.4 mg GA/100 g) and antioxidant capacity (1744.3 mg TE/100 g) than control. Enhanced protease and α-amylase and reduced lipase activities were observed in sprouted oat powder, which are promising features to improve its nutritional, sensorial and health-promoting properties. These results support the use of sprouted oat powder as a promising gluten-free functional ingredient.

Keywords: Antioxidant capacity; Celiac disease; Enzymatic activities; Flour; Germination; Oat.

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Conflict of interest statement

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- Cited by 1 article

MeSH terms

- Avena / chemistry*
- Avena / enzymology
- Avena / growth & development
- Diet, Gluten-Free*
- Nutritive Value*
- Phytochemicals / analysis

Substances

- Phytochemicals

Full-text links

27. Symptoms of gluten ingestion in patients with non-celiac gluten sensitivity: A randomized clinical trial


Authors

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Abstract

Objectives: Non-celiac gluten sensitivity (NCGS) is the presence of symptoms induced by gluten and relieved by a gluten-free diet (GFD) in patients without celiac disease or wheat allergy. Studies are mixed as to whether gluten is the main symptom trigger in patients with NCGS. Gluten immunogenic peptides (GIPs) in stool and urine are novel methods to monitor GFD compliance. Few studies have investigated their use in patients with NCGS. The aim of this study was to assess whether patients with NCGS have increased symptoms with gluten ingestion and to assess compliance with the GFD using stool and urine GIPs.

Method: This was a prospective, randomized, double-blinded crossover trial evaluating symptoms in patients with NCGS. Thirty patients with NCGS and 43 healthy controls were placed on a GFD. Patients received 0.5 or 2 g/d of gluten
for 7 d each. The remaining weeks, they received placebo for a total of 4 wk. Symptoms were evaluated weekly using the Celiac Symptom Index (CSI). Urine and stool samples were collected weekly and measured for the detection of GIPs to detect exposure to gluten.

**Results:** There was no difference in symptom severity within the NCGS group whether receiving placebo or gluten (32.69 versus 31.54, P = 0.64). Patients with NCGS had significantly higher CSI scores at baseline than healthy controls. Patients with NCGS were less likely to have stool and urine GIPs than healthy patients.

**Conclusion:** Patients with NCGS were more adherent to the GFD based on stool and urine GIP results. Patients with NCGS had increased symptom severity at baseline compared with healthy controls. Neither group had significantly increased symptoms after ingestion of gluten.

**Keywords:** Abdominal pain; Appetite; Food sensitivity; Gastrointestinal symptoms; Gluten; Headaches; Nausea; Non-celiac gluten sensitivity.

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**Full-text links**

28. [Non-responsive celiac disease may coincide with additional food intolerance/malabsorption, including histamine intolerance](https://doi.org/10.1016/j.mehy.2020.110404)


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- PMID: 33268003
- DOI: 10.1016/j.mehy.2020.110404

Abstract

**Background and pilot study:** Celiac disease (CD) or gluten malabsorption is a well-defined autoimmune disorder characterized by mucosal gastrointestinal reaction to ingested gluten proteins. The necessary treatment for CD is a gluten-free diet. However, up to 30% of celiac patients experience persistent or recurring abdominal complaints despite following an exact gluten-free diet. This condition was named refractory, non-responsive celiac disease. Other food ingredients, such as carbohydrates and biogenic amines, also influence and impair digestion, and may cause these abdominal symptoms. In this retrospective pilot study, we have reported on 20 non-responsive, celiac disease patients, with persistent abdominal complaints, for longer than 6 months. These patients were evaluated for extra food intolerance/malabsorption, including fructose malabsorption, histamine-, lactose intolerance, and Helicobacter pylori (H.p.) infection.

**Results and conclusions:** The results demonstrate that 18 of the 20 refractory, non-responsive celiac disease patients presented various, additional food intolerance/malabsorption and/or H.p. infection. Seven NRCD patients demonstrated lactose intolerance, 7 showed fructose malabsorption, 11 had additional histamine intolerance and 6 had signs of H.p. infection or combinations thereof. If present, then eradication of H.p. was performed. Histamine intolerance, was found in more than 50% of patients, and it seems to play an important role in non-responsive celiac disease. A registered dietician continued to help with, and to improve, the patients' gluten-free
diet. Furthermore, additional food intolerance/malabsorption considerations were included in the individual, dietary recommendations.

**Keywords:** Celiac disease; Fructose malabsorption; Gluten sensitivity; Histamine intolerance; Lactose intolerance.

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- Cited by 1 article

Full-text links

29. **Association of Infant Antibiotic Exposure With Childhood Health Outcomes**


Authors

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Abstract

Objective: To investigate the extent to which antibiotic exposure in the first 2 years of life is associated with the risk of immunological, metabolic, and neurobehavioral health conditions with childhood onset.

Patients and methods: In this population-based cohort study, we identified all children born in Olmsted County, Minnesota, between January 1, 2003, and December 31, 2011, through the Rochester Epidemiology Project medical records-linkage system. Demographic characteristics, antibiotic prescriptions, and diagnostic codes through June 30, 2017, were retrieved using the Rochester Epidemiology Project infrastructure. Time-to-event analysis was performed to assess the impact of antibiotic exposure on the risk of several adverse health conditions.

Results: This study included 14,572 children (7026 girls and 7546 boys), of whom 70% (10,220) received at least 1 antibiotic prescription during the first 2 years of life. Early antibiotic exposure was associated with an increased risk of childhood-onset asthma, allergic rhinitis, atopic dermatitis, celiac disease, overweight, obesity, and attention deficit hyperactivity disorder (hazard ratios ranging from 1.20 to 2.89; P<.05 for all). The associations were influenced by the number, type, and timing of antibiotic exposure. Moreover, children exposed to antibiotics had a higher probability of having combinations of conditions, particularly when given multiple prescriptions.

Conclusion: The present study finds significant associations between early life antibiotic exposure and several distinct health conditions with childhood onset. Additional research is warranted to establish practical guidelines to optimize the benefit and minimize the risk of antibiotics in children.
Conflict of interest statement

Conflict of interest disclosure: The authors do not have conflicts of interest to declare.

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- Research Support, Non-U.S. Gov't

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- Adolescent
- Anti-Bacterial Agents / adverse effects*
- Child
- Child Health / statistics & numerical data*
- Child, Preschool
- Female
- Humans
- Infant
- Infant, Newborn
- Male
- Risk Factors

Substances

- Anti-Bacterial Agents

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Full-text links

ELSEVIER
FULL-TEXT ARTICLE
Ipomoea hederacea Jacq.: A plant with promising antihypertensive and cardio-protective effects


Authors

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DOI: 10.1016/j.jep.2020.113584

Abstract

Ethnopharmacological relevance: Seeds of Ipomoea hederacea Jacq. (family: Convolvulaceae) are traditionally used to treat high blood pressure and cardiac diseases.
Aim of the study: Present study was conducted to validate the traditional claim and explore the possible mechanism(s) of antihypertensive effects of I. hederacea.

Materials and methods: Aqueous-ethanolic extract and activity based fractions of I. hederacea were evaluated using invasive blood pressure measuring technique, isolated tissue experiments, fructose induced hypertension/metabolic syndrome and biochemical analysis. Phytochemical analysis of active fraction was performed with aim to identify chemical composition of I. hederacea seeds. LC-MS analysis was also performed to identify the compounds proposed to be present in active fraction of I. hederacea seeds.

Results: Crude extract/fractions of I. hederacea showed dose (0.01-100 mg/kg) dependent significant hypotensive effect in normotensive anesthetized rats, similar to verapamil (0.01-30 mg/kg). Pretreatment with hexamethonium and atropine mediated no significant changes in hypotensive effect of butanol fraction of I. hederacea (Ih.Bn) at 3 mg/kg dose. However, a significant decrease in the hypotensive effect of Ih.Bn 3 mg/kg (-34.82 ± 3.36%; p < 0.05) was observed in the presence of L-NAME (20 mg/kg). Similarly, Ih.Bn (3 mg/kg) showed no significant effect on angiotensin-II response. However, response of phenylephrine (45.60 ± 9.63%; p < 0.05) and dobutamine (18.25 ± 2.10%; p < 0.01) was significantly decreased in the presence of Ih.Bn 3 mg/kg. Ih.Bn also exhibited dose dependent (0.01-100 mg/kg) antihypertensive effect in fructose induced hypertensive rats, similar to verapamil (0.01-30 mg/kg). Concomitant treatment with Ih.Bn (3, 10 and 30 mg/kg) for six weeks showed a dose dependent profound protection with significant (p < 0.01) effect at 30 mg/kg against fructose induced basal mean arterial pressure (142.2 ± 4.62 mmHg). Ih.Bn did not significantly change response of PE, Ang-II and Epi was observed in invasive and ex vivo techniques. However, Ih.Bn significantly (p < 0.01; p < 0.001) prevented against decrease in vascular response of acetylcholine in anesthetized rats and in isolated aorta of rat. A significant dose dependent decrease in triglyceride and glucose level (p < 0.001), and increase in HDL level (p < 0.05) was observed in Ih.Bn treated groups. Results of LC-MS analysis of Ih.Bn showed the presence of 24 compounds that belong to different chemical classes, including carboxylic acid, flavonoids, oligopeptides and tripeptide that are known to have antihypertensive and vasorelaxant properties.
Conclusions: Results of present study indicate the presence of hypotensive/antihypertensive effect in crude extract/fractions of I. hederacea with most potent effect shown by butanol fraction (Ih.Bn), possibly mediated through α₁ blocking, β blocking and iNOS/cGMP stimulating activity.

Keywords: Beta blocking activity; Metabolic syndrome; Nitric oxide synthase; Vascular dysfunction.

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Full-text links

31. Evaluation of Ocular Parameters in Adult Patients with Celiac Disease


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Abstract

Purpose: To evaluate ophthalmic parameters in adult celiac patients.
**Methods:** This cross-sectional study included 31 celiac patients (58 eyes) and 25 healthy controls (50 eyes). Tear break up time (TBUT), schirmer test were measured; corneal thickness, anterior chamber parameters were obtained using scheimpflug camera; retinal nerve fiber layer thickness (RNFL) evaluated by using spectral domain optical coherence tomography.

**Results:** There were no statistically significant differences between the groups in terms of gender, age, and intraocular pressure ($p > .05$). Schirmer's test results and TBUT were significantly lower in celiac patients ($p < .001, p < .001$). Additionally, the superior RNFL was significantly thinner ($p = .017$), nasal RNFL thicker ($p = .007$), and anterior chamber depth larger ($p = .037$) in celiac patients. The tissue transglutaminase 2 IgA antibody and superior RNFL were negatively correlated ($r = -0.394, p = .012$). The anterior chamber volume and anti-gliadin IgA antibody were positively correlated ($r = 0.369, p = .027$).

**Conclusion:** Celiac disease affects Schirmer's test results, TBUT, segmental RNFL thickness, and anterior chamber parameters. Ocular parameters might be affected in celiac disease especially in the presence of high antibody titer.

**Keywords:** Celiac disease; anterior chamber; antibody; retinal nerve fiber layer.

**Full-text links**

32. [Intestinal intraepithelial lymphocytes: Maintainers of intestinal immune tolerance and regulators of intestinal immunity](https://jleukb.oxfordjournals.org/content/109/2/339)


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- PMID: 32678936
- DOI: 10.1002/JLB.3RU0220-111

Abstract

Intestinal immune tolerance is essential for the immune system, as it prevents abnormal immune responses to large quantities of antigens from the intestinal lumen, such as antigens from commensal microorganisms, and avoids self-injury. Intestinal intraepithelial lymphocytes (IELs), a special group of mucosal T lymphocytes, play a significant role in intestinal immune tolerance. To accomplish this, IELs exhibit a high threshold of activation and low reactivity to most antigens from the intestinal lumen. In particular, CD8αα+ TCRαβ+ IELs, TCRγδ+ IELs, and CD4+ CD8αα+ IELs show great potential for maintaining intestinal immune tolerance and regulating intestinal immunity. However, if the intestinal microenvironment becomes abnormal or intestinal tolerance is broken, IELs may be activated abnormally and become pathogenic.

Keywords: CD4+CD8αα+IELs; CD8αα+TCRαβ+IELs; CD8αβ+TCRαβ+ IELs and celiac disease; TCRγδ+ IELs.


- 92 references

Publication types

- Review

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33. **Gynecological Disorders in Patients with Non-celiac Wheat Sensitivity**


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- PMID: 32146601
- DOI: 10.1007/s10620-020-06184-8

**Abstract**

**Background:** Non-celiac wheat sensitivity (NCWS) most frequently presents clinically with irritable bowel syndrome (IBS)-like symptoms, although many extra-intestinal manifestations have also been attributed to it. No studies to
date have evaluated the presence and frequency of gynecological symptoms in NCWS.

**Aim:** To evaluate the frequency of gynecological disorders in patients with NCWS.

**Patients and methods:** Sixty-eight women with NCWS were included in the study. A questionnaire investigating gynecological symptoms and recurrent cystitis was administered, and patients reporting symptoms were then examined by specialists. Three control groups were selected: 52 patients with IBS not related to NCWS, 56 patients with celiac disease (CD), and 71 healthy controls.

**Results:** 59% of the patients with NCWS showed gynecological symptoms, a higher frequency than in healthy controls (P = 0.04), IBS controls (P = 0.01) and CD controls (P = 0.02). Menstrual cycle alterations were more frequent in patients with NCWS than in healthy controls (26.5% vs 11.3%; P = 0.03); the patients with NCWS suffered from recurrent vaginitis (16%) and dyspareunia (6%) significantly more frequently than healthy controls. Twenty-nine percent of patients with NCWS reported recurrent cystitis, a finding higher than in the control groups (vs healthy P = 0.0001, vs IBS P = 0.001, vs CD controls P = 0.04). Microbiological examinations were negative in most of the patients with NCWS and recurrent vaginitis or cystitis. During the 1-year follow-up, 46% of patients with menstrual disorders and 36% with recurrent vaginitis reported resolution of symptoms on a wheat-free diet.

**Conclusions:** Patients with NCWS showed a significantly higher frequency of gynecological symptoms and recurrent cystitis than patients with IBS.

**Keywords:** Cystitis; Irritable bowel syndrome; Menstrual cycle abnormalities; Non-celiac wheat sensitivity; Obstetric diseases; Vaginitis.

- 28 references

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**Full-text links**
Old and modern wheat (Triticum aestivum L.) cultivars and their potential to elicit celiac disease


Authors

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PMID: 33152854
DOI: 10.1016/j.foodchem.2020.127952

Abstract

One potential explanation for the increasing prevalence of celiac disease (CD) over the past decades is that breeding may have inadvertently changed the immunoreactive potential of wheat. To test this hypothesis, we quantitated four CD-active peptides, namely the 33-mer and peptides containing the DQ2.5-glia-α1a/DQ2.5-glia-α2 (P1), DQ2.5-glia-α3 (P2) and DQ2.5-glia-γ1 (P3) epitopes, in a set of 60 German hexaploid winter wheat cultivars from 1891 to
2010 and grown in three consecutive years. The contents of CD-active peptides were affected more by the harvest year than by the cultivar. The 33-mer and P1 peptides showed no tendency regarding their absolute contents in the flour, but they tended to increase slightly over time when calculated relative to the α-gliadins. No trends in relative or absolute values were observed for the P2 and P3 peptides derived from α- and γ-gliadins. Therefore, the immunoreactive potential of old and modern wheat cultivars appears to be similar.

**Keywords:** 33-mer; Breeding; Celiac disease; ELISA; Gliadin; Gluten; Mass spectrometry; Wheat.

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- [Cited by 1 article](#)

**MeSH terms**

- Celiac Disease / immunology*
- Flour
- Gliadin / immunology
- Humans
- Triticum / immunology*

**Substances**

- Gliadin

**Full-text links**

[A rare cause of nephrocalcinosis in an infant: Answers](#)


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Erratum in

Correction to: A rare cause of nephrocalcinosis in an infant: Answers.

Nieto-Vega FA, Martín-Masot R, Rodríguez-Azor B, Martínez-Rivera V, Herrador-López M, Navas-López VM.


PMID: 32588219

No abstract available

12 references

Full-text links

Development and effectiveness assessment of a Persian-language
smartphone application for celiac patients: A randomized controlled clinical trial


Authors

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Abstract

Objectives: We aimed to design a Persian-language application for celiac patients and assess its effectiveness on patients’ knowledge and adherence to a gluten-free diet (GFD).

Methods: In the present randomized controlled clinical trial, 60 patients were randomly assigned to receive education through a smartphone application (n = 30) or conventional clinical education (n = 30). The primary outcomes were assessing knowledge about celiac disease and GFD, and adherence to GFD that were assessed at baseline and three months after interventions. The knowledge and adherence were assessed by a valid author-designed knowledge questionnaire and the validated celiac disease adherence test (CDAT) respectively.

Results: The mean disease duration was 4.38 ± 3.27 years. The mean post-intervention score of knowledge about gluten-free foods was significantly higher in the intervention group compared with the placebo group after
adjusting for baseline values and characteristics (p-value = 0.03). There was a significant difference in post-intervention CDAT values between the two groups (p-value = 0.01).

**Conclusion:** The smartphone application had a significant effect on celiac patients’ knowledge about gluten-free foods and adherence to GFD.

**Practice implications:** The smartphone applications can be designed according to each country’s particular circumstances and can be suggested by nutritionists and physicians to use by celiac patients.

**Keywords:** Adherence; Celiac disease; Education; Gluten-free diet; Knowledge; Smartphone application.

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**Conflict of interest statement**

Declaration of Competing Interest The authors declare no conflict of interest

**Full-text links**

37. [Gluten content in labeled and unlabeled gluten-free food products used by patients with celiac disease](https://linkinghub.elsevier.com/retrieve/pii/S41430-020-00854-6)


**Authors**

Wajiha Mehtab, Vikas Sachdev, Alka Singh, Samagra Agarwal, Namrata Singh, Rohan Malik, Anita Malhotra, Vineet Ahuja, Govind Makharia

**Affiliations**
Abstract

Objective: Gluten-free (GF) diet is the only reliable treatment for patients with celiac disease (CeD), but data on the extent of gluten contamination in GF food available in India is scanty. We evaluated gluten content in labeled, imported, and non-labeled GF food products currently available in the Indian market.

Methods: Overall, 794 processed and commercially available packaged GF products (labeled GF (n = 360), imported GF (n = 80), and non-labeled/naturally GF (n = 354)) were collected from supermarkets of National Capital Region of India. Those unavailable in stores were purchased from e-commerce sites or directly from the manufacturers. Gluten level in them was determined by Ridascreen Gliadin sandwich R5 enzyme-linked immunosorbent assay (R-Biopharm AG, Germany). As per Codex Alimentarius and Food Safety and Standard Authority of India, "gluten free" labeled products must not contain > 20 mg/kg of gluten.

Results: Overall, 10.1% of 794 GF products including 38 (10.8%) of 360 labeled and 42 (11.8%) of 354 non-labeled/naturally GF food products had gluten content > 20 mg/kg (range: 24.43-355 and 23.2-463.8 mg/kg, respectively). None of the imported GF products had gluten more than the recommended limits. Contaminated products most commonly belonged to cereal and their products (flours, coarse grains, pasta/macaroni, snack foods) pulse flours, spices, and bakery items.
Conclusions: A substantial proportion (10.1%) of GF food products (both labeled and non-labeled) available in India have gluten content greater than the prescribed limits of <20 mg/kg. Physicians, dietitians, support group, and patients with CeD should be made aware of this fact and regulatory bodies should ensure quality assurance.

- 31 references

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- 5/9/1179/2018-NUT/Indian Council of Medical Research (ICMR)
- 5/9/1179/2018-NUT/Indian Council of Medical Research (ICMR)

Full-text links

38. Performance of Viabahn balloon-expandable stent compared with self-expandable covered stents for branched endovascular aortic repair


Authors

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Affiliations
Abstract

Objective: The objective of this study was to compare the performance between the Viabahn balloon-expandable stent (VBX; Viabahn [W. L. Gore & Associates, Flagstaff, Ariz]) and a covered self-expandable stent (SES; Fluency [Bard Peripheral Vascular, Tempe, Ariz]) used as bridging stents for directional branches during fenestrated or branched endovascular aneurysm repair of complex aortic aneurysms.

Methods: Patients with thoracoabdominal aortic aneurysms (type I-IV) or pararenal aortic aneurysms either at high risk for open repair or unsuitable for endovascular repair with commercially available devices were prospectively enrolled in a physician-sponsored investigational device exemption trial. Descriptive statistics of the cohort included demographics, risk factors, and anatomic and device characteristics. Individual branches were grouped as either VBX or SES and had data analyzed for primary patency, branch-related type I or type III endoleaks, branch instability, branch-related secondary intervention, and branch-related aortic rupture or death. Categorical variables were expressed as total and percentage, and continuous variables were expressed as median (interquartile range). Kaplan-Meier curves were used to estimate long-term results. Groups were compared with the log-rank test. P value <.05 was considered statistically significant.

Results: During the period from July 2012 through June 2019, there were 263 patients treated for complex aortic aneurysm (thoracoabdominal aortic aneurysm) with fenestrated or branched endografts. The devices used were either custom-manufactured devices or off-the-shelf p-Branch or t-Branch (Cook Medical, Bloomington, Ind) devices. The median age was 71 years (interquartile range, 66-79 years); 70% were male, and 81% were white. The most common cardiac risk factors were smoking (92%), hypertension (91%),
hyperlipidemia (78%), and chronic obstructive pulmonary disease (52%). The total number of vessels incorporated into the repair was 977, with branches representing 18.4% (179 branches). Among these 179 branches, the celiac artery, superior mesenteric artery, right renal artery, and left renal artery received 54 (30%), 56 (31%), 38 (21%), and 31 (18%) branches, respectively. VBX and SES groups represented 96 (54%) and 81 (46%) of the branches implanted. The celiac artery, superior mesenteric artery, right renal artery, and left renal artery received VBX as a bridging stent in 40%, 46.7%, 33.8%, and 32.2% respectively. The overall cohort survival rate was 78.5% at 24 months. There was no branch-related rupture or mortality. Primary patency at 24 months (VBX, 98.1%; SES, 98.6%; log-rank, P = .95), freedom from endoleak (VBX, 95.6%; SES, 98.6%; log-rank, P = .66), freedom from secondary intervention (VBX, 94.7%; SES, 98.1%; log-rank, P = .33), and freedom from branch instability (VBX, 95.6%; SES, 97.2%; log-rank, P = .77) were similar between groups.

Conclusions: This initial experience with VBX stents demonstrated excellent primary patency and similarly low rates of branch-related complications and endoleaks, with no branch-related aortic rupture or death. Our results demonstrate that in a high-volume, experienced aortic center, the VBX stent is a safe and effective bridging stent option during branched endovascular aortic repair. Multicenter studies with a larger cohort and longer follow-up are necessary to validate these findings.

Keywords: Balloon-expandable stent; Fenestrated-branched repair; Self-expandable covered stent; Thoracoabdominal aortic aneurysm.

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Full-text links

39. Independent and cumulative coeliac disease-susceptibility loci are associated with distinct disease phenotypes

Authors

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PMID: 33446885
DOI: 10.1038/s10038-020-00888-5
Abstract

The phenotype of coeliac disease varies considerably for incompletely understood reasons. We investigated whether established coeliac disease susceptibility variants (SNPs) are individually or cumulatively associated with distinct phenotypes. We also tested whether a polygenic risk score (PRS) based on genome-wide associated (GWA) data could explain the phenotypic variation. The phenotypic association of 39 non-HLA coeliac disease SNPs was tested in 625 thoroughly phenotyped coeliac disease patients and 1817 controls. To assess their cumulative effects a weighted genetic risk score (wGRS39) was built, and stratified by tertiles. In our PRS model in cases, we took the summary statistics from the largest GWA study in coeliac disease and tested their association at eight P value thresholds ($P_T$) with phenotypes. Altogether ten SNPs were associated with distinct phenotypes after correction for multiple testing ($P_{EMP2} \leq 0.05$). The TLR7/TLR8 locus was associated with disease onset before and the SH2B3/ATXN2, ITGA4/UBE2E3 and IL2/IL21 loci after 7 years of age. The latter three loci were associated with a more severe small bowel mucosal damage and SH2B3/ATXN2 with type 1 diabetes. Patients at the highest wGRS39 tertiles had OR > 1.62 for having coeliac disease-related symptoms during childhood, a more severe small bowel mucosal damage, malabsorption and anaemia. PRS was associated only with dermatitis herpetiformis ($P_T = 0.2$, $P_{EMP2} = 0.02$). Independent coeliac disease-susceptibility loci are associated with distinct phenotypes, suggesting that genetic factors play a role in determining the disease presentation. Moreover, the increased number of coeliac disease susceptibility SNPs might predispose to a more severe disease course.

- 41 references

40. Association Between Severity of Diabetic Ketoacidosis at Diagnosis and Multiple Autoimmunity in Children With Type 1 Diabetes Mellitus: A Study From a Greek Tertiary Centre
Objectives: Type 1 diabetes mellitus is a chronic disorder associated with development of autoimmunity. In this work, we studied the relationship between severity of acidosis at diagnosis and future risk for autoimmunity development in children with type 1 diabetes.

Methods: We investigated the presence of associated autoimmunity in 144 children with type 1 diabetes (mean ± standard deviation: age, 12.44±4.76 years; diabetes duration, 4.41±3.70 years). We identified the presence of thyroid disease, celiac disease, autoimmune gastritis and adrenal autoimmunity, and retrospectively reviewed the files for presence of diabetic ketoacidosis at diagnosis.

Results: Autoimmunity prevalence was 16.7% for thyroid autoimmunity, 9.5% for celiac disease, 5% for gastric autoimmunity and 8.0% for multiple autoimmunities. There were strong associations between severe acidosis at diabetes diagnosis (pH<7.10) and development of thyroid autoimmunity (odds ratio [OR], 5.34; 95% confidence interval [CI], 1.90–15.1; p<0.001), celiac disease (OR, 5.83; 95% CI, 1.19–28.6; p=0.013), gastric autoimmunity (OR, 13.1; 95% CI, 1.22–140; p=0.006) and multiple autoimmunity (OR, 26.7; 95%
CI, 2.36–301; p<0.01). The associations persisted after adjustment for sex, age at diabetes diagnosis, age at assessment, time since diabetes diagnosis and antiglutamic acid decarboxylase autoantibody status.

**Conclusions:** The severity of acidosis at diagnosis is strongly associated with the development of associated autoimmune diseases in children with type 1 diabetes and could act as a predictive factor for multiple autoimmunity development. This association can be either due to effect of acidosis on immune system or to the presence of a more aggressive diabetes endotype.

**Keywords:** acidocétose diabétique; associated autoimmunity; auto-immunité associée; diabetes endotypes; diabetic ketoacidosis; diabète sucré de type 1; endotypes de diabète; type 1 diabetes mellitus.

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**Full-text links**


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PMID: 32659123
Abstract

Vegan and gluten-free markets have grown considerably in the last few years. Sustainability and the use of agro-industrial waste have also gained interest on food market. Thus, this study aimed to develop a vegan gluten-free alfajor, assessing the effect of different gluten-free flours (peanut okara (a by-product), sorghum, and rice flours) on the product sensory profile, and its market appeal. A simplex centroid design was applied to optimize the alfajor formulation. Check All That Apply and acceptance tests were performed. The use of different flours and their mixtures generated products with different texture attributes. All formulations obtained good acceptances, but higher concentrations of peanut okara and sorghum flours contributed to produce softer alfajors, considered as preferred by consumers. Therefore, it was possible to develop a gluten-free alfajor with sensory quality adding value to an agroindustrial by-product.

Keywords: By-products; peanut okara; product development; sorghum; vegan.

Full-text links

42. Disease- and gender-related characteristics of coeliac disease influence diagnostic delay


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Primary immunodeficiencies, autoimmune hyperthyroidism, coeliac disease and systemic lupus erythematosus in childhood immune thrombocytopenia


Authors

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PMID: 33025591
Abstract

Aim: To evaluate the cumulative prevalence of coeliac disease, systemic lupus erythematosus, autoimmune hyperthyroidism and primary immunodeficiencies in children with either newly diagnosed/persistent or chronic immune thrombocytopenia (ITP).

Methods: Monocentric retrospective analysis of the clinical and biochemical features of 330 consecutive patients with ITP referred to our Pediatric Hematology Unit between January 2009 and December 2018.

Results: The prevalence of systemic lupus erythematosus (0.3%), coeliac disease (0.3%) and autoimmune hyperthyroidism (0.6%) was not increased compared to general paediatric population. Of note, the prevalence of underlying primary immunodeficiencies was 2.4%, remarkably higher than the general paediatric population (P = .005). All the patients diagnosed with immunodeficiency developed either bi-/trilinear cytopenia or splenomegaly.

Conclusion: Whilst autoimmune and immunological screening is already recommended at the onset of immune thrombocytopenia, we recommend that primary immunodeficiencies be regularly screened during follow-up, especially in case of additional cytopenia or lymphoproliferation.

Keywords: ITP; autoimmune disease; children; primary immunodeficiencies.

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- 39 references
Life-Threatening Diarrhea in an Elderly Patient


Authors

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No abstract available

Full-text links

[ELSEVIER FULL-TEXT ARTICLE]
Reversal of Pathogen-Induced Barrier Defects in Intestinal Epithelial Cells by Contra-pathogenicity Agents


Authors

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- PMID: 32034605
- DOI: 10.1007/s10620-020-06121-9

Abstract

Background: Environmental enteropathy (EE) is associated with stunting, impairment of responses to oral vaccines, and other adverse health consequences in young children throughout the developing world. EE is characterized by chronic low-grade intestinal inflammation and disrupted epithelial barrier integrity, partly resulting from dysregulation of tight junction proteins, observed in other enteropathies such as celiac disease. During EE, this dysregulation of tight junction expression amplifies translocation of pathogenic bacteria across the intestinal mucosa.

Aims: The aim was to determine whether enteropathogen-mediated epithelial barrier failure can be ameliorated using contra-pathogenicity therapies.
**Methods:** Intestinal epithelial barrier damage was assessed in Caco-2 cells incubated with three important enteropathogens identified in EE patients: Enteropathogenic Escherichia coli (EPEC), Citrobacter rodentium (C. rodentium), and Cryptosporidium parvum (C. parvum). Potential therapeutic molecules were tested to detect effects on transepithelial resistance (TER), bacterial translocation (BT), claudin-4 expression, and regulation of the inflammatory cytokine response.

**Results:** All three enteropathogens compared to uninfected cells, reduced TER (EPEC; p < 0.0001, C. rodentium; p < 0.0001, C. parvum; p < 0.0007), reduced claudin-4 expression, and permitted BT (EPEC; p < 0.0001, C. rodentium; p < 0.0001, C. parvum; p < 0.0003) through the monolayer. Zinc, colostrum, epidermal growth factor, trefoil factor 3, resistin-like molecule-β, hydrocortisone, and the myosin light chain kinase inhibitor ML7 (Hexahydro-1-[(5-iodo-1-naphthalenyl)sulfonyl]-1H-1,4-diazepine hydrochloride); ML7) improved TER (up to 70%) and decreased BT (as much as 96%). Only zinc demonstrated modest antimicrobial activity.

**Conclusion:** The enteropathogens impaired intestinal-epithelial barrier integrity with dysregulation of claudin-4 and increased bacterial translocation. Enteropathogen-mediated damage was reduced using contra-pathogenicity agents which mitigated the effects of pathogens without direct antimicrobial activity.

**Keywords:** Citrobacter rodentium; Claudin-4; Cryptosporidium parvum; Enteropathogenic Escherichia coli; Intestinal barrier; Microbial translocation.

- 59 references

**Full-text links**

46. **Analysis of individual red blood cells for Celiac disease diagnosis**

Abstract

The field of medical diagnostics has endeavored to explore single species of biomolecules for sensitive and informative disease diagnostic applications. Here, Raman hyperspectroscopy is used to analyze red blood cells for identifying Celiac disease (CD). CD is a common autoimmune disorder which affects approximately 1% of the population. The ingestion of gluten by an individual with CD will result in the body initiating a violent immune response which causes severe damage to the small intestine. If the disease goes undiagnosed, substantial long-term health complications ranging in severity can arise. It is thus crucial to identify the disease as early on as possible to prevent additional problems from manifesting. However, current methods for detecting CD are expensive, invasive, and laborious. It was therefore the goal of this study to develop a better method for diagnosing CD which is noninvasive, inexpensive, accurate and definitive. Raman hyperspectroscopy was used to investigate individual red blood cells from donors with CD and from healthy controls who follow a gluten-free diet. Partial least squares discriminant analysis (PLS-DA) was used to evaluate the collected Raman spectral data for diagnostic purposes. Receiver operating characteristic (ROC) curve analysis was applied to evaluate the performance of the PLS-DA prediction algorithm, resulting in 100% successful external validation of the
developed method at the donor level. Raman hyperspectroscopy in combination with chemometric analysis is shown herein to successfully evaluate red blood cells for the accurate detection of CD in a noninvasive, simple, and cost-effective manner.

**Keywords:** Autoimmune disease; Celiac disease; Chemometrics; Clinical test; Diagnostics; Raman spectroscopy; Red blood cells.

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Full-text links

47. Recanalization and Stenting of the Celiac and the Superior Mesenteric Artery Supported by Use of a Steerable Introducer Sheath: Report on 2 Years' Experience


Authors

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DOI: [10.1177/1538574420975264](https://doi.org/10.1177/1538574420975264)
Abstract

**Purpose:** To compare technical parameters and success of recanalization of celiac (CA) or superior mesenteric artery (SMA) with usage of steerable vs not steerable introducer sheaths.

**Methods:** A retrospective analysis was performed on all consecutive patients who underwent recanalization with stent implantation of CA or SMA between 2015 and 2019. Data regarding technical success (successful stent placement with restoration of sufficient blood flow by the first attempt without changing kind of introducer sheath or access site), indication for treatment, vascular access, kind of introducer sheath, fluoroscopy time and radiation dose were collected. Preinterventional CT were analyzed to classify the difficulty of catheterization of target vessels. Technical parameters were compared with independent t-test (p ≤ 0.05).

**Results:** 66 patients underwent recanalization of CA or SMA. Usage of steerable introducer sheaths was associated with higher technical success compared to not steerable introducer sheaths with transfemoral approach respectively of 8/8 vs 15/19 for the CA and 11/11 vs 17/20 for the SMA. Steerable introducer sheaths were used in recanalization considered more technically difficult compared to not steerable introducer sheaths (58% vs 33%). Usage of steerable introducer sheath showed a statistically significant reduction of radiation dose in the recanalization of the SMA (respectively 32035 ± 15716 cGy cm² vs 60102 ± 28432 cGy cm²; p = 0.005).

**Conclusion:** Even if used in more difficult interventions, steerable introducer sheaths showed a higher technical success compared to not steerable introducer sheaths with transfemoral access.

**Keywords:** celiac artery; endovascular procedures; stents; superior mesenteric artery.

**MeSH terms**

- Aged
- Aged, 80 and over
- Celiac Artery* / diagnostic imaging
- Celiac Artery* / physiopathology
- Constriction, Pathologic
48. **Proteomic analysis of wheat seeds produced under different nitrogen levels before and after germination**


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Abstract

The objective of this study was to investigate differentially abundant proteins (DAPs) of wheat seeds produced under two nitrogen levels (0 and 240 kg/ha) before and after germination. We selected samples at 8 and 72 h after imbibition (HAI) to identify DAPs by iTRAQ. The results showed 190 and 124 DAPs at 8 and 72 HAI, respectively. Alpha-gliadin and chlorophyll a-b binding protein showed the biggest difference in abundance before and after germination. In GO enrichment analysis, the most significantly enriched GO term was nutrient reservoir activity at 8 HAI and endopeptidase inhibitor activity at 72 HAI. Moreover, many DAPs involved in mobilization of stored nutrients and photosynthesis were mapped to KEGG pathways. Dough development time, dough stability time and seedling chlorophyll content under N240 were significantly higher than those under N0, which validated the results of proteomic analysis. These results are crucial for food nutrition and food processing.

Keywords: Food processing; Germination; Nitrogen level; Proteomic analysis; Wheat seeds.
Allergenicity Assessment of Novel Food Proteins: What Should Be Improved?


Authors

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Abstract

Allergenicity prediction is one of the most challenging aspects in the safety assessment of foods derived from either biotechnology or novel food proteins. Here we present a bottom-up strategy that defines a priori the specific risk assessment (RA) needs based on a database appropriately built for such purposes.

Keywords: allergenicity assessment; biotechnology; celiac disease; novel food protein.

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Full-text links

Secondary Minimal Change Disease Due to Pancreatic Cancer Improved by Chemotherapy


Authors

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DOI: 10.2169/internalmedicine.5499-20

Free article

Abstract

We herein describe an 82-year-old patient who presented with proteinuria and systemic edema. He was diagnosed with minimal change disease (MCD) and was found to have stage III pancreatic cancer. He could not undergo surgical resection due to invasion to the celiac artery and he was thus treated with chemotherapy. After a month of chemotherapy, his proteinuria improved to a normal level. After two months of chemotherapy, computed tomography indicated a partial response to the therapy. MCD can occur as paraneoplastic syndrome in patients with malignant disease, and chemotherapy can be effective for MCD associated with paraneoplastic syndrome.

Keywords: chemoradiotherapy; minimal change disease; nab-Paclitaxel; pancreatic cancer; proteinuria.

Full-text links

51. Clinical validity of systemic arterial steal among extremely preterm infants with persistent patent ductus arteriosus
Abstract

Objective: Investigate relevance of diastolic flow abnormalities in celiac trunk (aCT) and middle cerebral artery (aMCA) among preterms with persistent
hemodynamically significant patent ductus arteriosus (phsPDA, diameter ≥ 1.5 mm, and age ≥ 7 days).

**Study design:** Five hundred fifteen echocardiograms from 156 neonates born <28 weeks gestation age (GA) were analyzed retrospectively. Infants with aCT or aMCA at any time were compared with the rest. Separate comparisons were performed for aCT and aMCA. Primary outcome was composite of death, chronic lung disease (CLD), or necrotizing enterocolitis ≥ stage 2. Logistic regression was used to adjust for confounders.

**Result:** Mean (SD) weight and GA were 820(214) g and 25.2(1.3) weeks. aMCA, but not aCT, was associated with primary outcome [adjusted odds ratio 2.17, 95% CI: 1.01-4.67] and CLD [2.20 (0.99-4.87)].

**Conclusion:** aMCA may be a valid marker for defining the clinical significance of phsPDA in preterm neonates. aCeT may be of limited value in selecting patients for treatment.

- Cited by 2 articles
- 26 references

**Full-text links**

52. **Optimization of gluten-free sponge cake fortified with whey protein concentrate using mixture design methodology**


**Authors**

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**Affiliations**
Abstract

This study aimed to optimize mixtures of whey protein concentrate (WPC) and two flours of rice and maize flours for the production of gluten-free sponge cakes. This was obtained by using mixture design methodology. WPC incorporation had positive effects on specific volume and baking loss of cakes, whilst, their incorporation increased their hardness. Considering all cakes properties, two formulas F1 (78.5% Maize, 15% Rice and 6.5% WPC) and F2 (82.4% Maize, 12% Rice and 5.6% WPC) were optimized using a mixture design. The microstructure F1 was more organized and very well structured with smaller aggregates. According to the organoleptic evaluation, F1 was also most appreciated by the tasting panel. The findings of the present study indicated that maize and rice flours, and WPC could be used as a substitute for wheat flour in producing sponge cakes of high quality.

Keywords: Gluten-free sponge cake; Maize; Mixture design; Rice; WPC.

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Full-text links
Exploiting the potential of Sudanese sorghum landraces in biofortification: Physicochemical quality of the grain of sorghum (Sorghum bicolor L. Moench) landraces


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PMID: 32777562
DOI: 10.1016/j.foodchem.2020.127604

Abstract

This study aimed to describe the phytonutrients and antioxidant activity, protein content, in vitro protein digestibility (IVPD), protein fraction, and bioavailability of Fe and Zn in the grains of five sorghum landraces grown in
Sudan. The results showed significant differences in all quality tests among the landraces. The Tetron landrace showed the highest percentage of crude protein and IVPD among the landraces. Additionally, most of the landrace grains had high contents of Fe and Zn with a high rate of bioavailability. The Kolom 4055 and Wad akar exhibited significantly higher total phenolic contents, with antioxidant activity of 79.3% and 83.4%, respectively. The glutelin content was relatively higher compared to the other fractions, irrespective of sorghum landraces. The principal components cumulatively accounted for 89.3% of the total variation among the five sorghum landraces. It can be concluded that these landraces could be used in the improvement of new value-added crops using the by-products of sorghum grains.

**Keywords:** Bioavailability; Grains; Landraces; Micronutrients; Phytonutrients; Sorghum.

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**Conflict of interest statement**

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**MeSH terms**

- Biofortification
- Biological Availability
- Digestion
- Flavonoids / analysis
- Genetic Variation
- Glutens / analysis
- Iron / analysis
- Plant Proteins, Dietary / analysis
- Plant Proteins, Dietary / pharmacokinetics
- Sorghum / chemistry*
- Sorghum / genetics
- Sudan
- Zinc / analysis
Substances

- Flavonoids
- Plant Proteins, Dietary
- Glutens
- Iron
- Zinc

Full-text links

54. Evaluation of heat stress through delayed sowing on physicochemical and functional characteristics of grains, whole meals and flours of India wheat


Authors

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PMID: 33279352
DOI: 10.1016/j.foodchem.2020.128725
Abstract

The physicochemical and functional characteristics of grain, meal and flour of timely sown wheat (TSW) and delayed sown wheat (DSW) were compared to see the effects of heat stress (HS). TSW and DSW of different lines were sown as per the approved timings. DSW experienced higher temperature during flowering and had shorter vegetative and maturation period than TSW. Pasting and dough rheological properties were measured using Rapid Visco-Analyser and Farinograph, respectively, while gliadins and glutenins profiling was done by SDS-PAGE. Delayed sowing decreased grain yield and diameter while increased protein and all categories of gliadins and high molecular weight glutenins. DSW showed higher peak viscosity, breakdown-viscosity and dough stability and lower setback viscosity, damaged starch, arabinoxylans and water absorption than TSW. HS in DSW appeared to lower starch synthesis causing proportionate increase in grain hardness and proteins content leading to changes in milling and rheological characteristics.

**Keywords:** Farinograph; Flour; Gluten; Grain hardness; Meal; Pasting; SDS-PAGE; Solvent retention capacity.

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**MeSH terms**
- Chemical Phenomena*
- Flour / analysis*
- Glutens / chemistry
- Hardness
- Heat-Shock Response*
- Rheology
- Starch / chemistry
- Triticum / chemistry*
- Viscosity
- Water / chemistry
- Whole Grains / chemistry*

**Substances**
- Water
- Glutens
Gluten-free diet modulates inflammation in salivary glands and pancreatic islets


Authors

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PMID: 33432638
DOI: 10.1111/odi.13775

Abstract

Objectives: A lifelong gluten-free (GF) diet ameliorates autoimmune diabetes in non-obese diabetic (NOD) mice and most likely in humans. Besides diabetes, NOD mice develop focal sialadenitis, as seen in Sjögren's syndrome (SS). In humans, type 1 diabetes (T1D) is also linked to SS. Here we investigated whether a lifelong GF diet influences the immune cell infiltration in the salivary glands and pancreatic islets in NOD mice.

Methods: NOD mice were fed a lifelong (i.e. 13 weeks) GF or gluten-containing standard (STD) diet. Insulitis and sialadenitis were scored on H&E-stained paraffin-embedded sections of pancreas and submandibular glands.
Immune-cell specificity and distribution were investigated immunohistochemically.

Results: There were fewer CD68+ and CD4+ cells in submandibular gland areas with focal sialadenitis as well as reduced insulitis and fewer VEGFR2+ cells in pancreatic islets in mice on GF versus STD diet. The degree of sialadenitis was not significantly lower in GF mice, but sialadenitis and insulitis correlated strongly. Lung weight was lower in GF mice.

Conclusion: In NOD mice, a lifelong GF diet reduces infiltration of monocytes/macrophages and T cells in salivary glands and inflammation in pancreatic islets, possibly by reducing VEGFR2, indicating that the linked autoimmune diseases, T1D and SS, may be alleviated by a GF diet.

Keywords: Islet of Langerhans; Macrophage; NOD mouse; Salivary gland; Sjögren’s syndrome; Type 1 Diabetes.

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Full-text links

56. Phosvitin-wheat gluten complex catalyzed by transglutaminase in the presence of Na$_2$SO$_3$: Formation, cross-link behavior and emulsifying properties


Authors

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Affiliations
Abstract

Phosvitin (PSV) is considered as a good emulsifier, although it has a low proportion of hydrophobic regions and steric hindrance. Wheat gluten (WG) possesses excellent hydrophobicity and macromolecular network structure. In this work, WG was subjected to a series of Na$_2$SO$_3$ solution, followed by cross-linking with PSV under transglutaminase (TGase) catalyzation. The results showed that Na$_2$SO$_3$ could break disulfide bonds of WG and increase its solubility from 7.33% to 42.82% with 1200 mg/L of Na$_2$SO$_3$. Correspondingly, the cross-linking degree was significantly enhanced. Compared to PSV, the cross-linked PSV-WG exhibited a higher surface hydrophobicity and thermal stability, with a lower zeta potential and apparent viscosity. The emulsifying activity of PSV-WG reached 17.42, 20.63 and 20.28 m$^2$/g with Na$_2$SO$_3$ concentration of 300, 600 and 900 mg/L, which were all higher than that of...
PSV (15.19 m²/g). This work provided a novel strategy to elevate emulsifying properties of PSV by cross-link reaction.

**Keywords:** Cross-link; Emulsifying property; Phosvitin; Transglutaminase; Wheat gluten.

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**Full-text links**

57. **Distance measurements and origin levels of the coeliac trunk, superior mesenteric artery, and inferior mesenteric artery by multiple-detector computed tomography angiography**


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- DOI: 10.1007/s12565-020-00571-x
Abstract

The aim of this study is to determine vertebral levels of the coeliac trunk, the superior mesenteric artery, and the inferior mesenteric artery originated from the abdominal aorta and to calculate the distance measurements between these arteries and between these arteries and the aortic bifurcation by multidetector computed tomography angiography technique. It was determined that the nine different vertebral levels of the coeliac trunk, the nine different vertebral levels of the superior mesenteric artery, and the eleven different vertebral levels of the inferior mesenteric artery. The distance measurements between the coeliac trunk and the superior mesenteric artery, the inferior mesenteric artery, the aortic bifurcation were found significant between female and male. In this study, it was determined more different levels than the levels described in classical anatomy. The preoperative information of these morphological variations can contribute to the reduction of surgical time and perioperative vascular complications especially for anterior lumbar interbody fusion and defining the location of the primary lymphatic drainage site for gastrointestinal malignancies.
Keywords: Abdominal aorta; Anatomic variation; Coeliac trunk; Mesenteric arteries; Mesenteric artery; Multidetector computed tomography; Superior; inferior.

- 33 references

Full-text links

58. **The Risk of Contracting COVID-19 Is Not Increased in Patients With Celiac Disease**


Authors

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Abstract

The World Health Organization declared coronavirus disease-2019 (COVID-19) a global pandemic in March 2020. Since then, there are more than 34 million cases of COVID-19 leading to more than 1 million deaths worldwide. Numerous studies suggest that celiac disease (CeD), a chronic immune-mediated gastrointestinal condition triggered by gluten, is associated with an increased risk of respiratory infections.\textsuperscript{1-3} However, how it relates to the risk of COVID-19 is unknown. To address this gap, we conducted a cross-sectional study to evaluate whether patients with self-reported CeD are at an increased risk of contracting COVID-19.

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- Cited by 1 article
- 8 references

MeSH terms

- Adult
- COVID-19 / epidemiology*
Anti-tissue transglutaminase titers are associated with endoscopic findings and severity of mucosal damage in children with celiac disease


Authors

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Abstract

We aimed to assess the correlation between clinical findings, serology, endoscopic findings, and histology in children diagnosed with celiac disease. Medical records of children diagnosed with celiac disease (2010-2017) at the Schneider Children's Hospital were reviewed retrospectively. Correlation between serologic measures anti-tissue transglutaminase (anti-tTG)/anti-endomysial antibodies (EMA) and other variables including mucosal damage, endoscopic findings (scalloping of duodenal folds), and clinical findings (abdominal pain, diarrhea, and anemia) was assessed. Out of 686 patients, 432 patients fulfilled the inclusion criteria (females 262, 61%; median age 6.0; interquartile range 4.0-9.0 years). Distribution of histopathology findings was Marsh IIIa 4%, Marsh IIIb 25%, and Marsh IIIc 71% with 313 (73%) patients having anti-tTG titer of ≥ 10 times the upper normal limit. Anti-tTG titer (but not EMA) positively correlated with Marsh grades, scalloping of duodenal folds and anemia. Anti-tTG ≥ 10 times the upper normal limit was associated with Marsh IIIc changes with an adjusted odds ratio of 4.5 (95% confidence interval, 1.7-12.1). Diarrhea and abdominal pain were not associated with serologic, endoscopic, or histologic markers of disease severity. Conclusion: Anti-tTG titers correlated with macroscopic and microscopic mucosal damage, with anemia but not with diarrhea or abdominal pain in children with celiac disease. What is Known: • Tissue transglutaminase antibody titers were shown to correlate with the degree of mucosal damage in patients with celiac disease. • There is a limited evidence regarding the association of celiac serologies with endoscopic and clinical measures. What is New: • Higher titers of tissue transglutaminase but not anti-endomysial antibodies are associated with more severe histologic and endoscopic damage and with the presence of anemia. • Symptoms do not correlate with the severity of mucosal damage.
such as scalloping of duodenal folds and histopathology changes according to Marsh classification or with serologic markers.

**Keywords:** Celiac disease; Children; Clinical characteristics; Histopathology; Serology.

- 26 references

**Full-text links**

**60. Inhibitory effects of sorbitol on the collapse and deterioration of gluten network in fresh noodles during storage**


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- PMID: 33248846
- DOI: 10.1016/j.foodchem.2020.128638

**Abstract**

In this paper, the inhibitory effects of sorbitol on the collapse of gluten network and textural deterioration of fresh noodles during storage were investigated, based on the changes in macroscopic and microscopic
characteristics of gluten protein. Appropriate addition (≤2%) of sorbitol increased dough viscoelasticity and extension energy. Sorbitol significantly inhibited the increase of cooking loss and adhesiveness of fresh noodles, and the decrease of hardness, springiness, LA-SRC value, and GMP weight during storage. SEM images showed that sorbitol retarded the deterioration of gluten network, with maintained continuous and ordered structure after 48 h. Sorbitol enhanced the hydrogen bond interactions in gluten system and promoted dynamic depolymerization and repolymerization of gluten protein molecules during processing and cooking, this may induce the texture stability. Sorbitol as a low-molecular polyol can inhibit the deterioration in gluten network and fresh noodle texture during storage, although showing no influence on the growth of microorganisms.

**Keywords:** Fresh noodle; Gluten collapse; Repolymerization; Sorbitol; Texture.

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Full-text links

61. The kiwifruit enzyme actinidin enhances the hydrolysis of gluten proteins during simulated gastrointestinal digestion


Authors

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Abstract

This study investigated the effect of actinidin, a cysteine protease in kiwifruit, on the hydrolysis of gluten proteins and digestion-resistant gluten peptides (synthetic 33-mer peptide and pentapeptide epitopes) under static simulated gastrointestinal conditions. Actinidin efficacy in hydrolysing gliadin was compared with that of other gluten-degrading enzymes. Actinidin hydrolysed usually resistant peptide bonds adjacent to proline residues in the 33-mer peptide. The gastric degree of hydrolysis of gluten proteins was influenced by an interaction between pH and actinidin concentration ($P < 0.05$), whereas the pentapeptide epitopes hydrolysis was influenced only by the actinidin concentration ($P < 0.05$). The rate of gastric degree of hydrolysis of gliadin was greater ($P < 0.05$) by actinidin (0.8%/min) when compared to papain, bromelain, and one commercial enzyme (on average 0.4%/min), while all exogenous enzymes were able to hydrolyse the pentapeptide epitopes effectively. Actinidin is able to hydrolyse gluten proteins under simulated gastric conditions.

Keywords: Actinidin; Gastrointestinal tract; Gliadin; Gluten; Hydrolysis.

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MeSH terms

- Actinidia / enzymology*
Insight into the advantages of premixing yeast-wheat gluten and combining ultrasound and transglutaminase pretreatments in producing umami enzymatic protein hydrolysates


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Abstract

This study aimed to utilize effectively industrial byproducts, yeast suspension (Y) and wheat gluten (W), to produce umami protein hydrolysates as seasonings. Y and W were mixed to yield YW, followed by a pretreatment (ultrasound, transglutaminase (TG), or their combination) and then proteolysis with a yeast extract enzyme and trypsin. Premixing Y and W promoted their dispersibility, and suppressed gluten aggregation and hydrolysate's bitterness. All pretreatments increased protein recovery. Ultrasound alone or ultrasound with TG increased the embedding of yeasts in W, umami and salty tastes, hydrolysis degree and proportion of molecules < 3 kDa of the YW hydrolysate. For the first time, premixing Y and W, and pretreating YW (by ultrasound then TG-catalyzed protein crosslinking), were found to increase the β-sheet and random coil contents and decreased the β-turn content and surface hydrophobicity, leading to a low-cost umami and non-bitter protein hydrolysate with 56% of species < 1 kDa.

Keywords: Byproduct utilization; Enzymatic crosslinking; Proteolysis; Seasoning; Secondary structure.
**Generation of an HLA-DQ2.5 Knock-In Mouse**


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- PMID: 33461981
- DOI: 10.4049/immunohorizons.2000107

**Abstract**

The human MHC class II molecule HLA-DQ2.5 is implicated in multiple autoimmune disorders, including celiac disease, type 1 diabetes, and systemic lupus erythematosus. The pathogenic contribution of HLA-DQ2.5 in many of these disorders is not fully understood. There is thus a need for an HLA-DQ2.5 humanized mouse model with physiological expression of this MHC molecule that can be integrated into disease models. In this article, we report the generation of an HLA-DQ2.5 knock-in mouse strain on a C57BL/6 background in which sequences encoding the extracellular moieties of mouse MHC class II H2-Iaα and H2-Iaβ1 have been replaced with those of HLA-DQA1*05:01 and HLA-DQB1*02:01. In heterozygous knock-in mice, the expression of HLA-DQ2.5 is superimposable with the expression of H2-IA. This was not the case in a regular untargeted HLA-DQ2.5 transgenic mouse. HLA-DQ2.5 in the knock-in...
animals is functional for T cell development and for Ag presentation to HLA-DQ2.5-restricted and gluten-specific T cells. Because C57BL/6 mice do not express H2-IEa, the only functional MHC class II molecule in homozygous HLA-DQ2.5 knock-in mice is the knock-in gene product. This alleviates the need for crossing with MHC class II knockout mice to study the isolated function of the MHC transgene. Our novel mouse strain provides an important tool to study the involvement of HLA-DQ2.5 in models of diseases with association to this HLA allotype.

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64. **Atopic Dermatitis Is Associated with Dermatitis Herpetiformis and Celiac Disease in Children**


Authors

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- PMID: 32540248
- DOI: 10.1016/j.jid.2020.05.091

*No abstract available*
Improvement of gluten-free steamed bread quality by partial substitution of rice flour with powder of Apios americana tuber


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PMID: 32919271
DOI: 10.1016/j.foodchem.2020.127977

Abstract

This study investigated the effect of powder made from tubers of the legume Apios americana (Apios) as a rice flour substitute in the making of gluten-free steamed bread. The carbohydrates of Apios powder were mainly starch and sucrose, and included legume-specific raffinose and stachyose. Apios powder contained almost no α-amylase but had a high level of β-amylase activity. Substitution of rice flour with Apios powder delayed the hardening of bread on storage and helped to maintain cohesiveness. Apios powder-substituted bread had higher maltose content than unsubstituted control bread due to β-
Amylase activity in the Apios powder. Bread substituted with 10% Apios powder had a significantly higher degree of gelatinization than the control even after storage, most likely due to lower amounts of recrystallized amylose as determined by differential scanning calorimetry. These results demonstrate Apios powder as promising a new food ingredient for improving the quality of gluten-free rice bread.

**Keywords:** Apios; Gluten-free bread; Retrogradation; Starch; β-Amylase.

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**Conflict of interest statement**

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**MeSH terms**

- Amylose / chemistry
- Bread* / analysis
- Calorimetry, Differential Scanning
- Diet, Gluten-Free
- Fabaceae / chemistry*
- Flour* / analysis
- Food Storage
- Maltose / analysis
- Oryza / chemistry*
- Plant Tubers / chemistry
- Powders / analysis
- Powders / chemistry
- Starch / chemistry
- Steam
- Sucrose / analysis
- alpha-Amylases / analysis

**Substances**

- Powders
- Steam
• Sucrose
• Maltose
• Starch
• Amylose
• alpha-Amylases

Full-text links

66. Adherence to gluten-free diet and follow-up of pediatric celiac disease patients, during childhood and after transition to adult care


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• PMID: 33515069
• DOI: 10.1007/s00431-021-03939-x

Abstract

Long-term data on pediatric celiac disease (CD) patients after transition to adult care is scarce. We aimed to evaluate patients' adherence to a gluten-free
diet (GFD), the normalization of celiac serology and the frequency of follow-up before age 18, and to study changes in adherence and follow-up frequency after transition to adult care. Presenting symptoms, serology and biopsy results, patients' reported GFD adherence, frequency of follow-up visits, and complications before and after 18 years were collected for CD patients diagnosed between 1998 and 2017. Of 441 CD patients diagnosed and followed in childhood, a quarter (108/441) were over 18 y (years) at data collection. Median age at diagnosis 7.1 y (9 months-18 y), at data collection 23 y (18-38 y), disease duration 11.3 y (2-36 y). Below the age of 18 y, most patients 386/436 (88.5%) reported adherence to GFD, and most 338/425 (85.7%) normalized serology. Of the 441 patients, only 3 failed to attend any follow-up visit, and 338/441 (76.6%) attended yearly visits. Over the age 18 y, serology testing was done in 78/108 (72.2%), every 1-3 y in 46/78 (59%). Serology normalized in 61/78 (78.2%). Most adult patients 77/108 (71.5%) never attended a gastroenterology clinic. CD-related complications were rare. Younger age at diagnosis, regular follow-up visits in childhood, resolution of symptoms, and normalization of serology before age 18 were identified as predictors of negative serology after the age of 18 y.Conclusions: Children who have regular follow-up and normalize serology before age 18 years are likely to maintain a GFD and have negative serology as adults. What is Known: • The rate of adherence to gluten-free diet (GFD) is higher among children compared to adults. • Data on long-term follow-up after transition to adult care is scarce. What is New: • Patients diagnosed with CD at a younger age (<12 y), who have yearly follow-up visits, resolution of symptoms, and negative serology in childhood are very likely to maintain GFD and have negative serology as adults. • Even though most patients do not attend GI clinics after transition to adulthood, most adhere to GFD, and complications are rare.

**Keywords:** Adherence; Follow-up; Gluten-free diet; Normalization of celiac serology; Transition.

- [24 references](#)
**T cell receptor repertoire as a potential diagnostic marker for celiac disease**


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- PMID: 33197618
- DOI: 10.1016/j.clim.2020.108621

**Free article**

**Abstract**

An individual's T cell repertoire is skewed towards some specificities as a result of past antigen exposure and subsequent clonal expansion. Identifying T cell receptor signatures associated with a disease is challenging due to the overall complexity of antigens and polymorphic HLA allotypes. In celiac disease, the antigen epitopes are well characterised and the specific HLA-DQ2-
restricted T-cell repertoire associated with the disease has been explored in depth. By investigating T cell receptor repertoires of unsorted lamina propria T cells from 15 individuals, we provide the first proof-of-concept study showing that it could be possible to infer disease state by matching against a priori known disease-associated T cell receptor sequences.

**Keywords:** CD4+ T cells; Celiac disease; Disease inference; High-throughput sequencing; TCR repertoire.

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**Full-text links**

68. [Dermatitis Herpetiformis: An Update on Diagnosis and Management](https://doi.org/10.1007/s40257-020-00584-2)


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DOI: 10.1007/s40257-020-00584-2
Abstract

Dermatitis herpetiformis (DH), presenting with an intense itch and blistering symmetrical rash, typically on the elbows, knees, and buttocks, is a cutaneous manifestation of celiac disease. Though overt gastrointestinal symptoms are rare, three-fourths of patients with DH have villous atrophy in the small bowel, and the rest have celiac-type inflammatory changes. DH affects mostly adults and slightly more males than females. The mean age at onset is about 50 years. DH diagnosis is confirmed by showing granular immunoglobulin A deposits in the papillary dermis. The DH autoantigen, transglutaminase 3, is deposited at the same site in tightly bound immune complexes. At present, the DH-to-celiac disease prevalence is 1:8. The incidence of DH is decreasing, whereas that of celiac disease is increasing, probably because of improved diagnostics. In DH, the treatment of choice for all patients is a gluten-free diet (GFD) in which uncontaminated oats are allowed. At onset, most patients need additional dapsone to rapidly control the rash and itching. Dapsone can be stopped after a mean of 2 years, and a strict lifelong GFD alone is required. Dietary adherence offers an excellent long-term prognosis for patients with DH, with a normal quality of life and all-cause mortality.

- 100 references

Publication types

- Review

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- AA070/Suomalainen Tiedeakatemia

Full-text links

 SpringerLink

69. Prognostic Role of Mismatch Repair Status, Histotype and High-Risk Pathologic
Features in Stage II Small Bowel Adenocarcinomas


Authors

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PMID: 32761330
PMCID: PMC7801310
**Abstract**

**Background:** Small bowel adenocarcinoma is a relatively rare cancer, often diagnosed in an advanced stage. In localized and resectable disease, surgery alone or in combination with adjuvant chemotherapy is the mainstay of treatment. In the recently published National Comprehensive Cancer Network Clinical Practice guidelines, criteria for selecting patients with stage II small bowel adenocarcinoma to receive adjuvant chemotherapy are provided, and they are mainly extrapolated from studies on colorectal cancer.

**Patients and methods:** In the present study, we aimed to verify whether mismatch repair deficiency phenotype, high-risk pathologic features (including T4, positive resection margins and a low number of lymph nodes harvested), as well as tumor histologic subtype, were associated with cancer-specific survival in 66 stage II non-ampullary small bowel adenocarcinoma patients, collected through the Small Bowel Cancer Italian Consortium. A central histopathology review was performed. Mismatch repair deficiency was tested by immunohistochemistry for MLH1, MSH2, MSH6 and PMS2, and confirmed by polymerase chain reaction for microsatellite instability.

**Results:** We identified mismatch repair deficiency, glandular/medullary histologic subtype, and celiac disease as significant predictors of favorable cancer-specific survival using univariable analysis with retained significance in bivariable models adjusted for pT stage. Among the high-risk features, only T4 showed a significant association with an increased risk of death; however, its prognostic value was not independent of mismatch repair status.

**Conclusions:** Mismatch repair protein expression, histologic subtype, association with celiac disease, and, in the mismatch repair proficient subset only, T stage, may help identify patients who may benefit from adjuvant chemotherapy.

**Conflict of interest statement**

The Authors have declared no conflicts of interest.

- Cited by 3 articles
36 references
2 figures

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Full-text links

**Gluten-free meals in public catering**


Authors

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9 Health Directorate coordinating Prevention and Veterinary Districts of Piedmont Region, Italy.
Abstract

**Background:** The Piedmont Region, the Food Hygiene and Nutrition Services of the Local Healthcare Authorities of the Piedmont Region (coordinated by ASL TO 3), and the Italian Coeliac Association Piedmont Onlus, have created a theoretical-practical training pathway for Food Business Operators to ensure a safe gluten-free meal.

**Study design:** The aim of the study is to perform a retrospective analysis of the data collected in order to assess whether the Food Business Operators will be able to manage in the short, medium and long term audits (3-month audits, 6-month audits and 1-year audits) all the production stages of a gluten-free meal (storage, production).

**Methods:** We have analysed the check-list used for assessing the gluten free meal, recorded from 2010 to 2016 by the staff of the Food Hygiene and Nutrition Services. They were filled out during three educational audits and they refer to 81 facilities.

**Results:** Two-hundred and forty-three audits were conducted (3 per facility). During all stages of production of gluten-free meals (short, medium and long term), non-compliant aspects had decreased (not statistically significant). The data analysis showed a slight increase in non-compliant aspects after a 1-year storage, the trend of non-compliant aspects slightly decreased during the three production stages, the service stage registered a slight upward trend, and finally, during the basic requirements stage and control plan stage, non-compliant aspects were in sharp decline (statistically significant).

**Conclusions:** The decrease of non-compliance guarantees safety and protection of the celiac subject, even if storage and services must be monitored more carefully in the medium term.

**Keywords:** Check list; Coeliac disease; Gluten-free meal; Public catering; Surveillance.
The effects of gluten protein substitution on chemical structure, crystallinity, and Ca in vitro digestibility of wheat-cassava snacks


Authors

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Abstract

Gluten protein based snacks have been a major concern for allergen, low nutrition and physio-chemical properties. In this study, wheat flour (WF) was replaced with cassava starch (CS) at different levels [10, 20, 30, 40 and 50%(w/w)] to prepare fried snacks. The addition of CS significantly (P < 0.05) increased hardness and pasting properties while gluten network, oil uptake, water holding capacity, and expansion were decreased. Fourier transform infrared spectroscopy revealed that the secondary structure of amide I, α-helix (1650-1660 cm⁻¹), along with amide II region (1540 cm⁻¹) changed when CS was added. Starch-protein complex was identified by X-ray diffraction analysis while no starch-protein-lipid complex was observed. The micrographs from scanning electron microscopy showed that starch-protein matrix was interrupted when ≥40%(w/w) CS was added. Furthermore, in vitro calcium bioavailability was decreased slightly with the addition of CS. The results suggest the feasibility of adding 40% CS as an alternative to WF in snacks.

Keywords: Cassava starch; Chemical structure; Fried snacks; Starch-protein matrix; Wheat flour.

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MeSH terms

- Digestion*
- Flour / analysis
- Glutens / chemistry*
- Hardness
- Manihot / chemistry*
- Snacks*
- Starch / chemistry
- Triticum / chemistry*
The use of microbial transglutaminase in a bread system: A study of gluten protein structure, deamidation state and protein digestion


Authors

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Microbial transglutaminase (mTG) catalyses the formation of protein crosslinks, deamidating glutamine in a side-reaction. Gluten deamidation by human tissue transglutaminase is critical to activate celiac disease pathogenesis making the addition of mTG to wheat-based products controversial. The ability of mTG (0-2000 U.kg\(^{-1}\)) to alter gluten's structure, digestibility and the deamidation state of six immunogenic gluten peptides within bread was investigated. Gluten's structure was altered when mTG exceeded 100 U.kg\(^{-1}\), determined by confocal microscopy, extractability and free sulphydryl assays. The effect of mTG on six immunogenic peptides was investigated by in vitro digestion (INFOGEST) and mass spectrometry. The addition of mTG to bread (0-2000 U.kg\(^{-1}\)) did not alter the deamidation state or digestibility of the immunogenic peptides investigated. Overall, this investigation indicated that the addition of mTG to bread does not create
activated gluten peptides. This analysis provides evidence for risk assessments of mTG as a food processing aid.

**Keywords:** Celiac; Food processing; Immunogenic peptide; Mass spectrometry; Peptidomics.

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**MeSH terms**

- Bread* / analysis
- Celiac Disease
- Digestion
- Glutens / chemistry*
- Glutens / immunology
- Glutens / pharmacokinetics*
- Humans
- Peptide Fragments / analysis
- Peptide Fragments / immunology
- Proteolysis
- Streptomyces / enzymology
- Transglutaminases / chemistry
- Transglutaminases / metabolism*
- Triticum / chemistry

**Substances**

- Peptide Fragments
- Glutens
- Transglutaminases

**Supplementary concepts**

- Streptomyces mobaraensis

**Full-text links**

[ELSEVIER FULTEXT ARTICLE](#)
An updated overview on celiac disease: from immuno-pathogenesis and immuno-genetics to therapeutic implications


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DOI: 10.1080/1744666X.2021.1880320

Abstract

Introduction: Celiac disease is an autoimmune enteropathy triggered by ingestion of gluten. While presenting many similarities with other autoimmune diseases, celiac disease is unique in that the external trigger, gluten, and the genetic background necessary for disease development (HLA DQ2/DQ8) are well described. The prevalence of celiac disease is dramatically increasing over the years and new epidemiologic data show changes regarding age of onset and symptoms. A better understanding of celiac disease
pathogenesis is fundamental to highlight the reasons of this rise of celiac diagnoses.

**Areas covered:** In this review we describe celiac disease pathogenesis by dissecting all the components necessary to lose tolerance to gluten (ingestion of gluten, genetic predisposition, loss of barrier function and immune response). Additionally, we also highlight the role that microbiome plays in celiac disease as well as new proposed therapies and experimental tools.

**Expert opinion:** Prevalence of autoimmune diseases is increasing around the world. As a result, modern society is strongly impacted by a social and economic burden. Given the unique characteristics of celiac disease, a better understanding of its pathogenesis and the factors that contribute to it may shed light on other autoimmune diseases for which external trigger and genetic background are not known.

**Keywords:** HLA; autoimmunity; barrier function; celiac disease; gluten; immune response; immunogenetics; microbiome.

**Full-text links**

[Video capsule endoscopy: pushing the boundaries with software technology](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7844874/)


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1 Department of Gastroenterology, NIHR Nottingham Digestive Diseases Biomedical Research Centre, Queens Medical Centre Campus, Nottingham University Hospitals NHS Trust, Nottingham, UK.
Video capsule endoscopy (VCE) has transformed imaging of the small bowel as it is a non-invasive and well tolerated modality with excellent diagnostic capabilities. The way we read VCE has not changed much since its introduction nearly two decades ago. Reading is still very time intensive and prone to reader error. This review outlines the evidence regarding software enhancements which aim to address these challenges. These include the suspected blood indicator (SBI), automated fast viewing modes including QuickView, lesion characterization tools such Fuji Intelligent Color Enhancement, and three-dimensional (3D) representation tools. We also outline the exciting new evidence of artificial intelligence (AI) and deep learning (DL), which promises to revolutionize capsule reading. DL algorithms have been developed for identifying organs of origin, intestinal motility events, active bleeding, coeliac disease, polyp detection, hookworms and angioectasias, all with impressively high sensitivity and accuracy. More recently, an algorithm has been created to detect multiple abnormalities with a sensitivity of 99.9% and reading time of only 5.9 minutes. These algorithms will need to be validated robustly. However, it will not be long before we see this in clinical practice, aiding the clinician in rapid and accurate diagnosis.

**Keywords:** Video capsule endoscopy (VCE); artificial intelligence (AI); deep learning (DL); software enhancement.

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**Conflict of interest statement**

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at http://dx.doi.org/10.21037/tgh.2020.02.01). The series “Advanced Endoscopic Imaging of the GI Tract” was commissioned by the editorial office without any funding or sponsorship. SB: research funding from Olympus. FP has no conflicts of interests to declare.
Non-classical clinical presentation at diagnosis by male celiac disease patients of older age


Authors

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Abstract

**Background:** In a biopsy-proven adult celiac disease (CeD) cohort from the Netherlands, male patients were diagnosed with CeD at significantly older ages than female patients.

**Objectives:** To identify which factors contribute to diagnosis later in life and whether diagnostic delay influences improvement of symptoms after starting a gluten-free diet (GFD).

**Methods:** We performed a questionnaire study in 211 CeD patients (67:144, male:female) with median age at diagnosis of 41.8 years (interquartile range: 25-58) and at least Marsh 2 histology.

**Results:** Classical symptoms (diarrhea, fatigue, abdominal pain and/or weight loss) were more frequent in women than men, but sex was not significantly associated with age at diagnosis. In a multivariate analysis, a non-classical presentation (without any classical symptoms) and a negative family history of CeD were significant predictors of older age at diagnosis (coefficients of 8 and 12 years, respectively). A delay of >3 years between first symptom and diagnosis was associated with slower improvement of symptoms after start of GFD, but not with sex, presentation of classical symptoms or age at diagnosis.

**Conclusion:** Non-classical CeD presentation is more prevalent in men and is associated with a diagnosis of CeD later in life. Recognizing CeD sooner after onset of symptoms is important because a long diagnostic delay is associated with a slower improvement of symptoms after starting a GFD.

**Keywords:** Diagnostic delay; Presenting symptoms; Sex differences; Treatment response.

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Villous atrophy persistence in celiac disease despite following a gluten-free diet must be clarified


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DOI: 10.17235/reed.2020.7033/2020

Free article

Abstract

We read with great interest the article recently published in REED by Shadegi et al. Villous atrophy (VA) persists in 35 % and 23.7 % of celiac disease (CD) patients for six and 24 months, respectively, after following a gluten-free diet (GFD). The authors think that the time following a GFD must be longer than two years in some patients to achieve mucosal healing and we agree with this. Our experience comes from a short series of ten females and three males with CD, diagnosed at an average age of 36 years (15-72) based on serology (anti-TG2 > 10 IU/ml or anti-Em positive) and a duodenal biopsy showing VA. All cases followed a GFD, according to the anamnesis and underwent a second duodenal biopsy and anti-TG2 determination after 42 (10-202) months. Immunogenic peptides of gluten (IPG) in feces were determined in four patients.
A variety of biological processes are regulated by posttranslational modifications. Posttranslational modifications including phosphorylation, ubiquitination, glycosylation, and proteolytic cleavage, control diverse physiological functions in the gastrointestinal tract. Therefore, a better understanding of their implications in intestinal diseases, including inflammatory bowel disease, irritable bowel syndrome, celiac disease, and colorectal cancer would provide a basis for the identification of novel biomarkers as well as attractive therapeutic targets. Posttranslational modifications can be common denominators, as well as distinct biomarkers, characterizing pathological differences of various intestinal diseases. This
review provides experimental evidence that identifies changes in posttranslational modifications from patient samples, primary cells, or cell lines in intestinal disorders, and a summary of carefully selected information on the use of pharmacological modulators of protein modifications as therapeutic options.

**Keywords:** 2,4,6-trinitrobenzenesulfonic acid (PubChem CID: 11045); AS605240 (PubChem CID: 5289247); Celiac disease; Colorectal cancer; Cytokines; DAMGO (PubChem CID: 5462471); FR167653 (PubChem CID: 135484078); Inflammatory bowel disease; Irritable bowel syndrome; Mangiferin (PubChem CID: 5281647); NF-κB; PD98059 (PubChem CID: 4713); Pyrrolidine dithiocarbamate (PubChem CID: 65351); SB203580 (PubChem CID: 176155); SP600125 (PubChem CID: 8515); XG-102 (PubChem CID: 90479374).

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**Publication types**
- Review

**Full-text links**

78. **Influence of ε-poly-l-lysine treated yeast on gluten polymerization and freeze-thaw tolerance of frozen dough**


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Abstract

The effects of ε-poly-l-lysine (ε-PL) treated yeast on gluten polymerization of frozen dough and quality of steamed bread after freeze-thaw cycles were investigated. Compared with steamed bread made from frozen dough containing ε-PL and untreated yeast (PUTY) or only untreated yeast, steamed bread made from frozen dough containing ε-PL treated yeast (PTY) had a larger specific volume, lower hardness and more porous. A dynamic rheological and scanning electron microscopic analysis demonstrated that using PTY instead of yeast could reduce dough elasticity and damage protein network after freeze-thaw cycles. Lower sodium dodecyl sulfate (SDS) soluble polymeric proteins and monomeric proteins, and higher SDS insoluble proteins were found in frozen dough containing PTY, which indicates a reduced depolymerization of gluten proteins after freeze-thaw cycles. After 4 freeze-thaw cycles, the lower glutathione and free sulphydryl in dough containing PTY indicate that the interchain disulfide bonds between proteins were preserved.

Keywords: Freeze–thaw cycles; Frozen dough; Gluten polymerization; ε-Poly-l-lysine treated yeast.

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Non-celiac wheat sensitivity: rationality and irrationality of a gluten-free diet in individuals affected with non-celiac disease: a review


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PMCID: PMC7788993
DOI: 10.1186/s12876-020-01568-6

Free PMC article

Abstract

Non-celiac gluten or wheat sensitivity (NCWS) is a "clinical entity induced by the ingestion of wheat leading to intestinal and/or extraintestinal symptoms that improve once the wheat-containing foodstuff is removed from the diet, and celiac disease and wheat allergy have been excluded". This mostly accepted definition raises several points that remain controversial on this condition. In the present review, the authors summarize the most recent advances in the clinic and research on NCWS through an accurate analysis of different studies. We screened PubMed, Medline, Embase, and Scopus using
the keywords "non-celiac gluten sensitivity", "non-celiac wheat sensitivity", and "diagnosis". We would like to emphasize two main points, including (A) the controversial clinical and etiological aspects in different trials and experiences with particular attention to the Salerno criteria for the diagnosis of NCWS and (B) the histological aspects. The etiology of NCWS remains controversial, and the relationship with irritable bowel syndrome is obscure. Histologically, the duodenal mucosa may show a variable pattern from unremarkable to a slight increase in the number of T lymphocytes in the superficial epithelium of villi. The endorsement of this disease is based on a positive response to a gluten-free diet for a limited period, followed by the reappearance of symptoms after gluten challenge. The Salerno expert criteria may help to diagnose NCWS accurately. Social media and inaccurate interpretation of websites may jeopardize the diagnostic process if individuals self-label as gluten intolerant.

**Keywords:** Allergy; Celiac disease; Duodenum; Irritable bowel syndrome; Wheat.

**Conflict of interest statement**

None.

- 146 references
- 1 figure

**Publication types**

- Review

**Grant support**

- HM2017/Women and Children's Health Research Institute

**Full-text links**

80. Effects of 1Dy12 subunit silencing on seed storage protein accumulation and flour-
processing quality in a common wheat somatic variation line


Authors

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PMID: 32738540
DOI: 10.1016/j.foodchem.2020.127663

Abstract

Dissecting the functions of high molecular weight glutenin subunits (HMW-GSs) is helpful for improving wheat quality via breeding. In this study, we used a wheat mutant AS273 in which HMW-GS 1Dy12 was silenced to investigate the silencing mechanism of 1Dy12 and its effects on gluten accumulation and flour-processing quality. Results suggested that the expression of 1Dy12 in AS273 was decreased by one fifth during grain development; a stop codon produced by a base mutation (C/T) led to truncated translation; the absence of 1Dy12 stimulated the accumulation of low molecular weight glutenin subunits (LMW-GSs), gliadins, and glutenin macropolymers, and was resulted
in larger protein bodies; AS273 had an inferior flour-processing performance. Based on the outputs achieved in this study it is concluded that 1Dy12 makes important contributions to bread, sponge cake and biscuit-processing quality.

**Keywords:** 1Dy12; Bromophenol blue (PubChem CID: 8272); Common wheat; Ethanol (PubChem CID: 702); Flour-processing quality; Gene silencing; Glutaraldehyde (PubChem CID: 3485); Glycerol (PubChem CID: 753); HMW-GSs; Hydrochloric acid (PubChem CID: 313); Isopropanol (PubChem CID: 3776); Potassium phosphate (PubChem CID 62657); Sodium dodecyl sulfate (PubChem CID: 3423265); Storage protein accumulation; Tris (hydroxymethyl)aminomethane (PubChem CID: 6503); dl-Dithiothreitol (PubChem CID: 446094).

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**Conflict of interest statement**

Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

- [Cited by 2 articles](#)

**MeSH terms**

- Bread* / analysis
- Codon, Terminator
- Electrophoresis, Polyacrylamide Gel
- Flour
- Gene Expression Regulation, Plant
- Gene Silencing
- Gliadin / metabolism
- Glutens / genetics*
- Glutens / metabolism*
- Molecular Weight
- Mutation
- Seed Storage Proteins / genetics
- Seed Storage Proteins / metabolism
- Seeds / genetics
- Seeds / growth & development
- Seeds / metabolism
- Triticum / genetics*
- Triticum / growth & development
- Triticum / metabolism*

Substances

- Codon, Terminator
- Seed Storage Proteins
- Glutens
- Gliadin
- glutenin

Full-text links

81. **Longevity, clonal relationship, and transcriptional program of celiac disease-specific plasma cells**


Authors

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Abstract

Disease-specific plasma cells (PCs) reactive with transglutaminase 2 (TG2) or deamidated gluten peptides (DGPs) are abundant in celiac disease (CeD) gut lesions. Their contribution toward CeD pathogenesis is unclear. We assessed expression of markers associated with PC longevity in 15 untreated and 26 treated CeD patients in addition to 13 non-CeD controls and performed RNA sequencing with clonal inference and transcriptomic analysis of 3,251 single PCs. We observed antigen-dependent V-gene selection and stereotypic antibodies. Generation of recombinant DGP-specific antibodies revealed a key role of a heavy chain residue that displays polymorphism, suggesting that immunoglobulin gene polymorphisms may influence CeD-specific antibody responses. We identified transcriptional differences between CeD-specific and non-disease-specific PCs and between short-lived and long-lived PCs. The short-lived CD19+CD45+ phenotype dominated in untreated and short-term-treated CeD, in particular among disease-specific PCs but also in the general PC population. Thus, the disease lesion of untreated CeD is characterized by massive accumulation of short-lived PCs that are not only directed against disease-specific antigens.

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Conflict of interest statement
Disclosures: The authors declare no competing interests exist.

- 69 references

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- WT_/Wellcome Trust/United Kingdom

Full-text links

82. Multi-criteria assessment of pea protein quality in rats: a comparison between casein, gluten and pea protein alone or supplemented with methionine


Authors

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DOI: 10.1017/S0007114520002883

Abstract

The objective of this study was to assess the nutritional quality of pea protein isolate in rats and to evaluate the impact of methionine (Met) supplementation. Several protein diets were studied: pea protein, casein,
gluten, pea protein-gluten combination and pea protein supplemented with Met. Study 1: Young male Wistar rats (n 8/group) were fed the test diets ad libitum for 28 d. The protein efficiency ratio (PER) was measured. Study 2: Adult male Wistar rats (n 9/group) were fed the test diets for 10 d. A protein-free diet group was used to determine endogenous losses of N. The rats were placed in metabolism cages for 3 d to assess N balance, true faecal N digestibility and to calculate the Protein Digestible-Corrected Amino Acid Score (PDCAAS). They were then given a calibrated meal and euthanised 6 h later for collection of digestive contents. The true caecal amino acid (AA) digestibility was determined, and the Digestible Indispensable Amino Acid Score (DIAAS) was calculated. Met supplementation increased the PER of pea protein (2·52 v. 1·14, P < 0·001) up to the PER of casein (2·55). Mean true caecal AA digestibility was 94 % for pea protein. The DIAAS was 0·88 for pea protein and 1·10 with Met supplementation, 1·29 for casein and 0·25 for gluten. Pea protein was highly digestible in rats under our experimental conditions, and Met supplementation enabled generation of a mixture that had a protein quality that was not different from that of casein.

**Keywords:** Amino acid digestibility; Digestible Indispensable Amino Acid Score; Protein Digestible-Corrected Amino Acid Score; Protein balance; Protein digestibility; Protein efficiency ratio.

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**Cited by 1 article**

**Full-text links**

83. **Does Size Really Matter?**


**Authors**

Nayantara Coelho-Prabhu 1, Sunanda Kane

**Affiliation**
Abstract

Ileocolonoscopy remains the mainstay of objective disease assessment in Crohn's Disease, and various validated indices are used to grade severity of the disease. The most commonly used indices are the Simple Endoscopic Score for Crohn's Disease (including the size of ulcers) and the Crohn's Disease Endoscopic Index of Severity (including the depth of ulcers). These measurements are highly subjective, especially the depth of an ulcer, and are based solely on the discretion of the endoscopist coupled with the imaging capabilities of the colonoscope and adequacy of the bowel prep. Narula et al. undertook a post hoc analysis of baseline predictors of endoscopic remission (ER) at week 26 in a subset (172 of 508) of moderate-severe Crohn's disease patients participating in the SONIC trial. The authors found no significant differences in the odds of achieving ER when comparing overall or segmental severe inflammation (high Simple Endoscopic Score for Crohn's Disease [>16 overall or >3 per segment] or Crohn's Disease Endoscopic Index of Severity [>12 overall or >3 per segment] scores) with moderate inflammation. The number of affected segments involved also did not impact the likelihood of achieving week 26 ER. The authors then found a potentially synergistic effect with large and deep ulcers in the ileum and rectum. The optimal time to assess whether ulcers ultimately heal or not is unknown, but waiting longer than 26 weeks may negate any lead time bias regarding ulcer size. Therefore, similar to many areas of life, it is likely that size ultimately does not matter, but instead location, location, and location.

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Comment on

- Mass Screening for Celiac Disease: The Autoimmunity Screening for Kids Study.

Distal Pancreatectomy with Celiac Axis Resection (Modified Appleby Procedure) and Arterial Reconstruction for Locally Advanced Pancreatic Adenocarcinoma After FOLFIRINOX Chemotherapy and Chemoradiation Therapy

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DOI: 10.1245/s10434-020-08740-y

Abstract

Background: Resectability of pancreatic carcinoma (PC) is directly linked to vascular extension (Tempero MA et al. in J Natl Compr Canc Netw 15(8):1028-1061, 2017. https://doi.org/10.6004/jnccn.2017.0131; Isaji S et al. in Pancreatology 18(1):2-11, 2018. https://doi.org/10.1016/j.pan.2017.11.011). Involvement of the celiac axis (CA) is typically a contraindication to surgery. High postoperative morbidity and subsequent poor prognosis have been observed in this case, especially for contact > 180° requiring arterial resection (Tempero MA et al. 2017). Recent medical advances in PC treatment, such as FOLFIRINOX-based chemotherapy eventually followed by chemoradiation therapy, offer the potential to select tumour for surgery and to obtain a negative-margin resection even in case of unresectable PC at diagnosis (Suker M et al. in Lancet Oncol 17(6):801-10, 2016. https://doi.org/10.1016/s1470-2045(16)00172-8; Pietrasz D et al. in Ann Surg Oncol 26(1):109-117, 2019. https://doi.org/10.1245/s10434-018-6931-6). A major pathologic response has been observed in more than 20% of patients after this treatment and is associated with an improved survival (Suker M et al. 2016; Pietrasz D et al. 2019). This evolution allows aggressive surgical strategies with the possibility of long-term disease control for patients showing a good response to induction treatment.

Patient: This video presents the case of a 66-year-old man diagnosed with a locally advanced ductal adenocarcinoma of the pancreatic body with a 360°
involvement of the CA and the hepatic artery. After eight courses of FOLFIRINOX chemotherapy and a capecitabin-based chemoradiation, a surgical exploration was planned for potential resection.

**Technique:** The key steps of the procedure are presented, i.e. surgical exposition, assessment of resectability with frozen sections of peri-arterial tissues, en bloc resection (Strasberg SM et al. in Surgery 133(5):521-527, 2003. [https://doi.org/10.1067/msy.2003.146](https://doi.org/10.1067/msy.2003.146)), and primary end-to-end arterial reconstruction.

**Conclusion:** A modified Appleby operation for locally advanced PC is a technically challenging but feasible procedure in experienced teams. It offers the possibility of en bloc R0 resection of a locally advanced PC with the potential of long-term disease local control. This video may help surgeons to perform this complex intervention.

- 14 references

**Full-text links**

85. **All Things Gluten: A Review**


**Authors**

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Abstract

Gluten is a common dietary component with a complex protein structure. It forms incomplete products of digestion, which have the potential to mount an immune response in genetically predisposed individuals, resulting in celiac disease. It also has been linked with nonceliac gluten sensitivity and irritable bowel syndrome due to wheat allergy. A gluten-free diet is an effective treatment of these conditions; however, it can lead to micronutrient and mineral deficiencies and a macronutrient imbalance with higher sugar and lipid intake. Recent popularity has led to greater availability, but increasing cost, of commercially available gluten-free products.

**Keywords:** Celiac disease; Gluten; Gluten sensitivity; Gluten-free diet; Irritable bowel syndrome; Nutrition.

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**Conflict of interest statement**

Disclosure None of the authors has any financial disclosures for the purpose of this publication.

Publication types

- Review

86. [Quantification of Accidental Gluten Contamination in the Diet of Children with Treated Celiac Disease](#)
A strict gluten-free diet is extremely difficult to maintain. Protracted ingestion of gluten traces (>10 mg/day) is sufficient to cause significant damage in the architecture of the small intestinal mucosa in patients on treatment for celiac disease. The aim of this study was to directly measure the level of contaminating gluten in the daily diet of celiac children following a gluten-free diet. From April 2019 to December 2019, celiac disease children (2-18 years old) on a gluten-free diet for ≥6 months were offered to participate in this prospective-observational study. Patients and their caregivers were invited to provide a representative portion (about 10 g) of all meals consumed during a 24-h period. Participants were requested to weigh all ingested food and report items in a 24-h food diary. The gluten content was quantified by the R5 sandwich enzyme-linked immunosorbent assay method. Sixty-nine children completed the protocol. Overall, 12/448 (2.7%) food samples contained detectable amounts of gluten; of them, 11 contained 5-20 ppm and 1 >20 ppm. The 12 contaminated food samples belonged to 5/69 enrolled patients. In these 5 children, the daily gluten intake was well below the safety threshold.
of 10 mg/day. The present findings suggest that in a country characterized by high celiac disease awareness, the daily unintended exposure to gluten of treated celiac children on regular follow-up is very low; reassuringly, the presence of gluten traces did not lead to exceed the tolerable threshold of 10 mg/day of gluten intake in the gluten-free diet.

**Keywords**: R5 ELISA; celiac disease; diet therapy; gluten exposure; gluten traces; treatment compliance.

**Conflict of interest statement**

Carlo Catassi is a scientific consultant to Schär Food, Takeda and NOOS Italy. The other authors declare no conflicts of interest.

- **19 references**
- **1 figure**

**Full-text links**

87. Acerola fruit as a natural antioxidant ingredient for gluten-free bread: An approach to improve bread quality


**Authors**

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Abstract

In this study, we evaluated the effect of enrichment of bread using acerola fruit powder on the physical, sensorial and antioxidant properties of gluten-free breads. We tested different proportions of acerola fruit powder (0-5% w/w) in rice flour. According to the results, loaf volume increased from 423.33 cm$^3$ to 571.67 cm$^3$ with increasing amount of acerola fruit powder cm$^3$ with increasing amount of acerola fruit powder (from 0 to 5% w/w). Acerola fruit powder improved the structural parameters of the crumb by increasing the size and area fraction of cells. All tested quantities of acerola fruit powder improved textural parameters by decreasing firmness and chewiness and by increasing springiness. In addition, acerola fruit powder positively affected the antioxidant properties of enriched breads. The total phenolic content and antioxidant activity of extracts was found to be increased with the addition of acerola fruit powder. All antioxidant activities were found to be increased with increasing quantities of acerola fruit powder. The sensory attributes of the bread showed that a partial replacement of the rice flour with up to 3% of acerola fruit powder provided satisfactory results. The optimum level of acerola fruit powder for all parameters tested was found to be 3% w/w.

Keywords: Acerola fruit; antioxidant; gluten-free bread; quality.
Prevalence of Wheat/Gluten-Related Disorders and Gluten-Free Diet in Paraguay: An Online Survey-Based Study


Authors

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- DOI: 10.3390/nu13020396

Free article

Abstract

Gluten-related disorders (GRDs) are increasing around the world, but their magnitude and relevance remain unknown in most Latin American countries. Thus, an online survey was conducted to estimate the prevalence of GRDs as well as adherence to a gluten-free diet (GFD) in Paraguayan adult population. There were 1058 individuals surveyed using a validated questionnaire (response rate of 93.9%). The self-reported prevalence rates were as follows...
(95% CI): gluten sensitivity (GS), 10.30% (8.53-12.29); non-celiac GS (NCGS), 5.19% (3.94-6.71); physician-diagnosed celiac disease (PD-CD), 3.11% (2.15-4.35); wheat allergy (WA), 2.07% (1.30-3.13); and adherence to GFD, 15.69% (13.55-18.02). Excluding CD, more women than men met the criteria for GRDs, adverse food reactions, and GFD ($p < 0.05$). Eight respondents reported the coexistence of NCGS with PD-CD and/or WA. Most cases on a GFD indicated medical/dietitian advice for following the diet (68.07%). Non-self-reported GS individuals indicated weight control (46.4%) and the notion that the GFD is healthier (20.2%) as the main motivations for following the diet. GRDs are not uncommon in Paraguayan adult population. It seems that there is awareness about GRDs and the GFD, but training about the diagnosis of GRDs is desirable because of the informed overlapping diagnoses of CD or WA with NCGS. Future studies involving face-to-face interviews are necessary.

**Keywords:** celiac disease; gluten-free diet; gluten-related disorders; non-celiac gluten sensitivity; wheat allergy.

**Conflict of interest statement**

The authors declare no conflict of interest.

**Full-text links**

89. [Effect of extrusion temperature on the protein aggregation of wheat gluten with the addition of peanut oil during extrusion](https://www.mdpi.com/10.1007/s10529-020-01386-z)


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**Affiliations**
Abstract

The influence of extrusion temperature on protein components and aggregation of wheat gluten (WG) and wheat gluten-peanut oil complexes (WPE) during extrusion with the addition of peanut oil was studied. Gliadin content and wheat gluten extractability decreased and glutenin content increased as extrusion temperature increased. At the same extrusion temperature, the gliadin content in WPE was higher than that in WG. The addition of peanut oil also resulted in the higher gluten extractability of WPE than WG. Increasing extrusion temperature also increased the average molecular weight of glutenin and gliadin. The decreased free sulfhydryl (SH) and increased disulfide bonds (SS) indicated that wheat gluten aggregation was promoted, via disulfide cross-linking, when extrusion temperature increased. Furthermore, increased temperature promoted the aggregation of gluten by increasing sulfhydryl-disulfide bond (SH-SS) interchange during extrusion. When the secondary structure of wheat gluten was analyzed by circular dichroism, the relative gluten α-helix content was decreased and the relative β-sheet content was increased. Also, the results of scanning electron microscopy (SEM) showed the size of the resultant particles increased with temperature, and the mean particle size of WPE was higher than WG. This research shows that extrusion temperature promotes gluten aggregation of WG and WPE. It provides basic data to support the study of gluten-lipid extrusion in the field of protein processing.

Keywords: Aggregation; Extrusion temperature; Peanut oil; Wheat gluten.
Declaration of competing interest The authors declare that they have no competing interests.

Full-text links

90. Ligation of symptomatic celiac artery aneurysm without vascular reconstruction: Utilizing the natural collateral circulation of the celiac axis: A case report


Authors

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Free PMC article
Abstract

**Introduction:** Celiac artery aneurysm is very rare visceral artery aneurysm. Symptomatic and ≥ 2.5 cm sized aneurysm requires treatment. Excision and revascularization is the most commonly employed procedure.

**Case presentation:** We report a case of ligation and excision of celiac artery aneurysm extending onto the splenic and hepatic arteries without vascular reconstruction. The patient was a 52 year old lady who was evaluated for abdominal pain and was found to have a celiac artery aneurysm involving the hepatic and splenic arteries. She was evaluated with computerized tomography and digital subtraction angiography of the abdominal vessels. These confirmed good natural collaterals from the branches of superior mesenteric artery supplying the liver, stomach and spleen. We performed ligation and excision of the aneurysm and ligation and division of hepatic, splenic and left gastric arteries as the aneurysm was extending on to these vessels, without any vascular reconstruction, utilizing the natural collaterals from the superior mesenteric artery.

**Discussion:** Ligation of celiac artery aneurysm without revascularization is often done in emergency situations. Excision and revascularization is the treatment of choice to ensure adequate blood supply to liver, spleen and stomach. We could utilize the natural collateral circulation of celiac artery from superior mesenteric artery avoiding a complex procedure of revascularization.

**Conclusion:** We present this because of the rarity of the disease as well as rarity of the technique of not performing vascular reconstruction. We emphasize on the pre-operative and operative evaluation of collateral circulation with conventional angiography and intraoperative Doppler respectively.

**Keywords:** Abdominal aneurysm; Celiac artery aneurysm (CAA); Celiac artery collateral circulation; Visceral artery aneurysm (VAA).

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- [16 references](#)
- [5 figures](#)
Publication types

- Case Reports

Full-text links

91. Positive tissue transglutaminase antibodies with negative endomysial antibodies: Unresolved issues in diagnosing celiac disease


Authors

Maria Infantino ¹, Mario Merone ², Mariangela Manfredi ³, Valentina Grossi ³, Alessandra Landini ³, Maria Grazia Alessio ⁴, Giulia Previtali ⁴, Maria Teresa Trevisan ⁵, Brunetta Porcelli ⁶, Martina Fabris ⁷, Donatella Macchia ⁸, Danilo Villalta ⁹, Luigi Cinquanta ¹⁰, Federico D'Antoni ², Giulio Iannello ², Paolo Soda ², Nicola Bizzaro ¹¹

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Abstract

**Background:** The serological screening for celiac disease (CD) is currently based on the detection of anti-transglutaminase (tTG) IgA antibodies, subsequently confirmed by positive endomysial antibodies (EMA). When an anti-tTG IgA positive/EMA IgA negative result occurs, it can be due either to the lower sensitivity of the EMA test or to the lower specificity of the anti-tTG test. This study aimed at verifying how variation in analytical specificity among different anti-tTG methods could account for this discrepancy.

**Methods:** A total of 130 consecutive anti-tTG IgA positive/EMA negative samples were collected from the local screening routine and tested using five anti-tTG IgA commercial assays: two chemiluminescence methods, one fluoroimmunoenzymatic method, one immunoenzymatic method and one multiplex flow immunoassay method.

**Results:** Twenty three/130 (17.7%) patients were diagnosed with CD. In the other 107 cases a diagnosis of CD was not confirmed. The overall agreement among the five anti-tTG methods ranged from 28.5% to 77.7%. CD condition was more likely linked to the positivity of more than one anti-tTG IgA assay (monopositive = 2.5%, positive with ≥ three methods = 29.5%; p = 0.0004), but it was not related to anti-tTG IgA antibody levels (either positive or borderline; p = 0.5).
Conclusions: Patients with positive anti-tTG/negative EMA have a low probability of being affected by CD. Given the high variability among methods to measure anti-tTG IgA antibodies, anti-tTG-positive/EMA-negative result must be considered with extreme caution. It is advisable that the laboratory report comments on any discordant results, suggesting to consider the data in the proper clinical context and to refer the patient to a CD reference center for prolonged follow up.

Keywords: Anti-endomysial antibodies; Anti-tissue transglutaminase antibodies; Assay variability; Celiac disease.

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Full-text links

92. Whole blood interleukin-2 release test to detect and characterise rare circulating gluten-specific t cell responses in coeliac disease


Authors

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Affiliations

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Abstract

Whole blood cytokine release assays (CRA) assessing cellular immunity to gluten could simplify diagnosis and monitoring of coeliac disease (CD). We aimed to determine the effectiveness of electrochemiluminescence CRA to detect responses to immunodominant gliadin peptides. HLA-DQ2.5+ CD adults (Cohort 1, n=6; Cohort 2, n=12) and unaffected controls (Cohort 3, n=9) were enrolled. Cohort 1 had 3-day gluten challenge (GC). Blood was collected at baseline, and for Cohort 1 also at 3h, 6h and 6d after commencing 3-day GC. Gliadin peptide-stimulated proliferation, IFN-γ ELISpot, and 14-plex and 3-plex electrochemiluminescence CRA were performed. Poisson Distribution Analysis was used to estimate responding cell frequencies. In Cohort 1, IL-2 dominated the gliadin peptide-stimulated cytokine release profile in whole blood. GC caused systemic IL-2 release acutely, and increased gliadin peptide-stimulated IFN-γ ELISpot and whole blood CRA responses. Whole blood CRA after GC was dominated by IL-2, but also included IFN-γ, CXCL10/IP-10, CXCL9/MIG, IL-10, CCL3/MIP-1α, TNF-α, and IL-8/CXCL8. In Cohort 2 and 3, gliadin peptide-stimulated whole blood IL-2 release was 100% specific, and 92% sensitive for CD patients on GFD; the estimated frequency of cells in CD blood secreting IL-2 to α-gliadin peptide was 0.5 to 11 per ml. Whole blood IL-2 release successfully mapped HLA-DQ2.5-restricted epitopes in an α-gliadin peptide library using CD blood before and after GC. Whole blood IL-2 release assay using electrochemiluminescence is a sensitive test for rare gliadin-specific T cells in CD, and could aid in monitoring and diagnosis. Larger studies and validation with tetramer-based assays are warranted.

Keywords: Coeliac disease; IL-2; T cells; cytokine release assay; cytokines; diagnosis.

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Lower Level of Plasma 25-Hydroxyvitamin D in Children at Diagnosis of Celiac Disease Compared with Healthy Subjects: A Case-Control Study


Authors

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DOI: 10.1016/j.jpeds.2020.08.089

Abstract

Objective: To evaluate the vitamin D status of children with a new diagnosis of celiac disease compared with healthy controls.

Study design: This was a case-control study. Cases were consecutive children with newly diagnosed celiac disease. Controls were healthy children matched for age, sex, ethnicity, and month of blood testing. Plasma 25-hydroxyvitamin
D (25-OHD) was measured as the index of vitamin D nutritional status. The Student t test was used for comparisons. Differences in frequencies were evaluated with the $\chi^2$ test. Associations between variables were estimated by calculating Pearson correlation coefficients.

**Results:** There were 131 children with celiac disease enrolled (62% females; mean age 8.1 ± 1.1 years). The control group included 131 healthy children (62% females; mean age 8.2 ± 1.2). All were of European origin. Plasma 25-OHD levels were significantly lower in patients than in controls (25.3 ± 8.0 and 31.6 ± 13.7 ng/mL; $P < .0001$). The percentage of children with vitamin D deficiency (<20 ng/mL) was significantly higher in children with celiac disease as compared with controls (31% vs 12%; $P < .0001$). The concentration of 25-OHD was significantly lower in patients than in controls during summer ($P < .01$) and autumn ($P < .0001$).

**Conclusions:** In this case-control study, at diagnosis, children with celiac disease showed lower levels of plasma 25-OHD compared with healthy subjects. Vitamin D status should be checked at diagnosis of celiac disease, particularly during summer and fall months.

**Keywords:** controls; deficiency; pediatric celiac disease; vitamin D.

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**Full-text links**

94. [Thermally induced gluten modification observed with rheology and spectroscopies](https://doi.org/10.1016/j.ijbiomac.2021.01.008)


**Authors**

Monika C Wehrli ¹, Tim Kratky ², Marina Schopf ³, Katharina A Scherf ⁴, Thomas Becker ¹, Mario Jekle ⁵
Abstract

The protein vital gluten is mainly used for food while interest for non-food applications, like biodegradable materials, increases. In general, the structure and functionality of proteins is highly dependent on thermal treatments during production or modification. This study presents conformational changes and corresponding rheological effects of vital wheat gluten depending on temperature. Dry samples analyzed by X-ray photoelectron spectroscopy (XPS), Fourier-transform infrared spectroscopy (FTIR) and thermalgravimetric analysis coupled with mass spectrometry (TGA-MS) show surface compositions and conformational changes from 25 to 250 °C. Above 170 °C, XPS reveals a decreased N content at the surface while FTIR band characteristics for β-sheets prove structural changes. At 250 °C, protein denaturation accompanied by a significant mass loss due to dehydration and
Decarbonylation reactions is observed. Oscillatory measurements of optimally hydrated vital gluten describing network properties of the material show two structural changes along a temperature ramp from 25 to 90 °C: at 56–64 °C, the temperature necessary to trigger structural changes increases with the ratio of gliadin to total protein mass, determined by reversed-phase high performance liquid chromatography (RP-HPLC). At a temperature of 79–81 °C, complete protein denaturation occurs. FTIR confirms the denaturation process by showing band shifts with both temperature steps.

**Keywords:** Biopolymer; Protein; Rheology; Spectroscopy; Structure; Surface science.

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**Conflict of interest statement**

Declaration of competing interest None.

**Full-text links**

[Coeliac disease is associated with depression in children and young adults with type 1 diabetes: results from a multicentre diabetes registry](https://doi.org/10.1007/s00592-020-01649-8)


**Authors**

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**Affiliations**
Abstract

**Aims:** To analyse the association between coeliac disease (CD) and depression in children, adolescents, and young adults with type 1 diabetes (T1D).

**Methods:** We included 79,067 T1D patients aged 6-20 years, with at least six months of diabetes duration, and treatment data between 1995 and 2019 were documented in the diabetes patient follow-up registry. We categorized patients into four groups: T1D only (n = 73,699), T1 + CD (n = 3379), T1D + depression (n = 1877), or T1D + CD + depression (n = 112).

**Results:** CD and depression were significantly associated (adjusted OR: 1.25 [1.03-1.53]). Females were more frequent in both the depression and the CD group compared with the T1D only group. Insulin pumps were used more frequently in T1D + CD and T1D + depression compared with T1D only (both p
HbA1c was higher in T1D + depression (9.0% [8.9-9.0]), T1D + CD + depression (8.9% [8.6-9.2]), both compared with T1D only (8.2% [8.2-8.2], all p < .001). We found comorbid autism, attention deficit hyperactivity disorder, anxiety, schizophrenia, and eating disorders more frequently in the T1D + CD + depression group compared with T1D only (all p < .001).

Conclusions: CD and depression are associated in young T1D patients. The double load of T1D and CD may lead to an increased risk for depression. Depression was associated with additional psychological and neurological comorbidities. Aside from imperative CD screening after T1D diagnosis and regular intervals, depression screening might be helpful in routine care, especially in patients with diagnosed CD.

Keywords: Coeliac disease; DPV; Depression; Endocrinology; Paediatric.

- 48 references

Grant support

- FKZ 82DZD14A02/German Centre for Diabetes Research (DZD)

Full-text links

96. A novel quantitative ELISA as accurate and reproducible tool to detect epidermal transglutaminase antibodies in patients with Dermatitis Herpetiformis


Authors

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RC 30/17/IRCCS Burlo Garofolo

Full-text links

97. Food Processing, Dysbiosis, Gastrointestinal Inflammatory Diseases,
and Antiangiogenic Functional Foods or Beverages


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PMID: 33467906
DOI: 10.1146/annurev-food-062520-090235

Abstract

Foods and beverages provide nutrients and alter the gut microbiota, resulting in eubiosis or dysbiosis. Chronic consumption of a diet that is high in saturated or trans fats, meat proteins, reducing sugars, and salt and low in fiber induces dysbiosis. Dysbiosis, loss of redox homeostasis, mast cells, hypoxia, angiogenesis, the kynurenine pathway, transglutaminase 2, and/or the Janus kinase pathway are implicated in the pathogenesis and development of inflammatory bowel disease, celiac disease, and gastrointestinal malignancy. This review discusses the effects of oxidative, carbonyl, or glycative stress-inducing dietary ingredients or food processing-derived compounds on gut microbiota and gastrointestinal epithelial and mast cells as well as on the development of associated angiogenic diseases, including key signaling pathways. The preventive or therapeutic potential and the biochemical pathways of antiangiogenic or proangiogenic foods or beverages are also described. The outcomes of the interactions between disease pathways and components of food are critical for the design of foods and beverages for healthy lives. Expected final online publication date for the Annual Review of Food Science and Technology, Volume 12 is March 2021. Please see http://www.annualreviews.org/page/journal/pubdates for revised estimates.
The indications for biopsy in routine upper gastrointestinal endoscopy


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PMID: 33382487
DOI: 10.1111/his.14213

Abstract

This review describes the indications and contraindications for endoscopic biopsy, in routine practice, of the upper gastrointestinal (GI) tract. We accept that this review provides grounds for controversy, as our stance in certain situations is counter to some national guidelines. Nevertheless, we provide evidence to support our viewpoints, especially on efficiency and economic grounds. We describe the particular controversies concerning the biopsy assessment of Barrett's oesophagus, chronic gastritis and the duodenum in the investigation of coeliac disease. We accept that there are indications for more extensive upper GI biopsy protocols in children than in adults; the latter constitute our main focus in this article. We would encourage detailed discussion between pathologists and their endoscopy colleagues about the indications, or lack of them, for routine upper GI endoscopic biopsy, as studies have shown that adherence to agreed guidelines has resulted in a very considerable diminution in the biopsy workload without compromising patient
management. Furthermore, where biopsy is indicated, we emphasise the importance of accompanying clinical information provided to the pathologist, in particular regarding biopsy site(s), and regular feedback to endoscopists to improve and maintain the quality of such information. Finally, local dialogue is also advised, when necessary, to indicate to endoscopists the need to appropriately segregate biopsies into separate, individually labelled specimens, to maximise the information that can be derived by pathological evaluation and thereby improve the quality of the final pathology report.

**Keywords:** Barrett's oesophagus; biopsy; coeliac disease; duodenum; gastritis; oesophagus; reflux; stomach.

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- 81 references

**Full-text links**

99. Persistent Villous Atrophy in De Novo Adult Patients With Celiac Disease and Strict Control of Gluten-Free Diet Adherence: A Multicenter Prospective Study (CADER Study)


**Authors**

Fernando Fernández-Bañares, Belén Beltrán, Antonio Salas, Isabel Comino, Raquel Ballester-Clau, Carme Ferrer, Javier Molina-Infante, Mercé Rosinach, Inés Modolell, Francisco Rodríguez-Moranta, Beatriz Arau, Verónica Segura, Luis Fernández-Salazar, Santos Santolaria, Maria Esteve, Carolina Sousa
Abstract

Introduction: A substantial proportion of adult patients with celiac disease on a gluten-free diet exhibit persistent villous atrophy, and inadvertent gluten exposure may be one of the causes. The aim of the present study was to evaluate villous atrophy persistence after 2 years on a gluten-free diet in de novo adult patients with celiac disease with strict control of gluten exposure.

Methods: Symptomatic de novo adult patients with celiac disease were prospectively included. Clinical visits and dietary surveillance were scheduled every 6 months during a 2-year follow-up period. At each visit, fecal samples were collected and stored at -20 °C until analysis for gluten immunogenic peptides (f-GIPs). A follow-up duodenal biopsy was performed at 2 years. We evaluated the variables associated with persistent villous atrophy.

Results: Seventy-six patients completed the study (36.5 ± 1.6 years, 73% women); persistent villous atrophy was observed in 40 (53%), whereas 72.5%
were asymptomatic and 75% had negative serology. Detectable f-GIP >0.08 μg/g in at least 1 fecal sample was seen in 69% of patients. There were no significant differences in the median f-GIP at each visit and median area under the curve over the serial measurements between patients with persistent villous atrophy and those who recovered. On multivariate analysis, only older age was associated with persistent villous atrophy (32% for 16-30 years; 67% for >30 years; P = 0.016).

Discussion: The rate of persistent villous atrophy after 2 years was high in adult patients with celiac disease on an intentionally strict gluten-free diet. Low-level ongoing inadvertent gluten exposure could be a contributing factor to persistent villous atrophy.

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Full-text links

Seronegative Villous Atrophy in Children: Clinical and Immunohistochemical Features


Authors

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PMID: 32833891
Abstract

**Objectives:** Villous atrophy (VA) is not pathognomonic of celiac disease (CD). We aimed at reporting distribution, clinical, and immunohistochemical features of seronegative VA (SNVA) in a pediatric population.

**Methods:** We retrospectively collected data from patients who underwent intestinal biopsies between 2010 and 2017 and showed VA without serum CD-associated autoantibodies. Marsh-Oberhuber grading was used. Density of intraepithelial lymphocytes (IELs) expressing CD3 or TCRγδ+ receptor and of lamina propria CD25+ cells was assessed by immunohistochemistry. Intestinal deposits of anti-tissue transglutaminase2 (anti-TG2) were also investigated by double immunofluorescence.

**Results:** Over a 7-year period, 64 out of 1282 patients with VA had negative serum CD serology. Diagnoses were: inflammatory bowel diseases (IBD) (21/64), Gastro-Esophageal Reflux Disease (GERD) (12/64), food allergy (8/64), infections (7/64, of which 3 HIV infections), immune deficiency (3/64), short bowel syndrome (3/64), congenital diarrhea (2/64), other/inconclusive diagnosis (8/64). Forty-four, 15, and 5 showed Marsh 3a, 3b, and 3c lesion, respectively. The latter category included 2 patients with Crohn disease, 2 with immunodeficiencies, 1 with lymphohistiocytosis. In 41/46 (89%) patients, mononuclear CD25+ cells were above the cut-off, indicating mucosal inflammation but only 18/46 (39%) had IELs and TCRγδ + IELs above limits of normality. In 10 of 46 (22%) patients, a positive immunofluorescence indicated the presence of anti-TG2 mucosal antibodies.

**Conclusions:** SNVA is not rare representing up to 5% of the cases of VA. Most patients have a Marsh 3a lesion. Immunohistochemical analysis may be helpful in excluding CD, whereas the finding of mucosal anti-TG2, particularly with a weak staining, shows no absolute specificity for CD.

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**Conflict of interest statement**
The authors report no conflicts of interest.

- 21 references

Full-text links

101. Effects of Physical and Chemical Factors on the Structure of Gluten, Gliadins and Glutenins as Studied with Spectroscopic Methods


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- PMCID: PMC7835854
- DOI: 10.3390/molecules26020508

Free PMC article

Abstract

This review presents applications of spectroscopic methods, infrared and Raman spectroscopies in the studies of the structure of gluten network and gluten proteins (gliadins and glutenins). Both methods provide complimentary information on the secondary and tertiary structure of the proteins including analysis of amide I and III bands, conformation of disulphide bridges,
behaviour of tyrosine and tryptophan residues, and water populations. Changes in the gluten structure can be studied as an effect of dough mixing in different conditions (e.g., hydration level, temperature), dough freezing and frozen storage as well as addition of different compounds to the dough (e.g., dough improvers, dietary fibre preparations, polysaccharides and polyphenols). Additionally, effect of above mentioned factors can be determined in a common wheat dough, model dough (prepared from reconstituted flour containing only wheat starch and wheat gluten), gluten dough (lack of starch), and in gliadins and glutenins. The samples were studied in the hydrated state, in the form of powder, film or in solution. Analysis of the studies presented in this review indicates that an adequate amount of water is a critical factor affecting gluten structure.

**Keywords:** Raman spectroscopy; dietary fibre preparations; gliadins; gluten; glutenins; hydrocolloids; infrared spectroscopy; proteins structure.

**Conflict of interest statement**

The authors declare no conflict of interest.

- 130 references

**Publication types**

- Review

**Grant support**

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**Full-text links**

[Management of coeliac disease patients after the confirmation of diagnosis in Central Europe](#)
Abstract

**Background:** Recently published paediatric guidelines for diagnosing coeliac disease do not include recommendations on the follow-up of coeliac disease patients.
Goal: The aim of this study was to assess the management practices and experience of coeliac disease patients with their follow-up appointments in Central Europe.

Study: Gastroenterologists and coeliac disease patients in five Central European countries were asked to complete the web-based questionnaire focusing on coeliac disease management practices.

Results: Answers from 147 gastroenterologists and 2041 coeliac disease patients were available for the analysis. More than half of the gastroenterologists (58.5%) schedule the first follow-up visit within 3 months after the diagnosis. At follow-up, tissue transglutaminase antibodies are checked in almost all patients (95.9%). Approximately two-thirds (60.7%) of gastroenterologists refer all of their patients to the dietitian at diagnosis. Similarly, 42.8% of coeliac disease patients reported that they had not been appointed to a dietitian. Almost one-third of coeliac disease patients (30.8%) reported that they had no follow-up appointments with gastroenterologist at all.

Conclusions: Follow-up of coeliac disease patients is suboptimal in Central Europe. Many patients are not followed regularly. A lot of patients are not referred to a dietitian. The recommendations on the optimal follow-up of coeliac disease patients are needed in order to improve patient care.

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Full-text links

103. Phenotype and Natural History of Children With Coexistent Inflammatory Bowel Disease and Celiac Disease

Authors

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Abstract

**Background:** Adult patients with both inflammatory bowel disease (IBD) and celiac disease (CeD) have peculiar phenotypic features. This study aimed at describing the characteristics and natural history of children with both IBD and CeD.

**Methods:** This was a case-control study based on a national registry. Cases included children diagnosed with both IBD and CeD. Two matched IBD controls without CeD, and 2 matched CeD controls were selected for each case. Inflammatory bowel disease phenotype and natural history, comprising growth and pubertal development, were compared between groups.
**Results:** Forty-nine (1.75%) patients with IBD and CeD were identified out of 2800 patients with IBD. Compared with patients with IBD alone, patients with IBD and CeD presented more frequently with autoimmune diseases (odds ratio, 2.81; 95% CI, 0.97-8.37; P = 0.04). Ileocolonic localization (46.1% vs 73.1%), treatment with azathioprine (46.2% vs 71.2%), and anti-TNF biologics (46.2% vs 69.2%) were less common in patients with Crohn's disease and CeD than in patients with Crohn's disease alone. Patients with ulcerative colitis and CeD had an increased risk of colectomy despite similar medical treatments compared with patients with ulcerative colitis alone (13.0% vs 0%). Pubertal delay was more common in patients with IBD and CeD compared with patients with IBD alone (14.9% vs 3.2%; odds artio, 5.24; 95% CI, 1.13-33.0; P = 0.02) and CeD alone (14.9% vs 1.1%; P = 0.002).

**Conclusions:** Children with IBD and CeD may have peculiar features with a higher risk for autoimmune diseases, colectomy, and pubertal delay compared with IBD alone.

**Keywords:** celiac disease; children; inflammatory bowel disease.

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**Full-text links**

104. [Mitigation of Gliadin-Induced Inflammation and Cellular Damage by Curcumin in Human Intestinal Cell Lines](#)


**Authors**

Kunj Bihari Gupta 1, Anil K Mantha 2, Monisha Dhiman 3
Abstract

Wheat is a major diet from many years; apart from its nutritious value, the wheat protein gliadin is responsible for many inflammatory diseases like celiac disease (CD), and non-celiac gluten sensitivity (NCGS). In this study, the gliadin-induced inflammation and associated cellular damage along with the protective role of curcumin was evaluated using human intestinal cell lines (HCT-116 and HT-29) as a model. Cells were cultured and exposed to 160 μg/ml of gliadin, 100 μM H₂O₂, and 10 μM curcumin (3 h pretreatment) followed by the assessment of inflammation. Spectrophotometric methods, real-time-PCR, ELISA, Western blotting, and confocal microscopy techniques were used to assess inflammatory markers such as advanced oxidation protein products (AOPPs) level, activity of myeloperoxidase (MPO) and NADPH oxidase (NOX), cytokines, and cell damage markers. The results show that gliadin increases the AOPPs level and the activity of MPO and NOX expression. It enhances inflammation by increasing expression of pro-inflammatory cytokines, altered expression of anti-inflammatory, and regulatory cytokines. It exacerbates the cellular damage by increasing MMP-2 and 9 and decreasing integrin α and β expression. Gliadin promotes disease pathogenesis by inducing the inflammation and cellular damage which further alter the cellular homeostasis. The pretreatment of curcumin counteracts the adverse effect of gliadin and protect the cells via diminishing the inflammation and help the cell to regain the cellular morphology suggesting phytochemical-based remedial interventions against wheat allergies.
Keywords: celiac disease; cellular damage; curcumin; gliadin proteins; inflammation; qRT-PCR.

- 44 references

Grant support

- JRF/SRF/Indian Council of Medical Research

Full-text links

105. The Effect of Group-Based Education on Knowledge and Adherence to a Gluten-Free Diet in Patients with Celiac Disease: Randomized Controlled Clinical Trial


Authors

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- PMID: 33420717
Abstract

**Background:** Considering the importance of educational programs on compliance of patients with celiac disease with a gluten-free diet (GFD), we investigated the effect of a group-based education program on knowledge and adherence to a GFD in patients with celiac disease.

**Method:** In the present controlled clinical trial, patients in the intervention group (n = 66) underwent a three-session group-based educational program, and patients in the control group (n = 64) received routine education in visits to the clinic. The primary outcomes were knowledge and adherence to a GFD. Participant knowledge was assessed by a validated author-designed questionnaire. Adherence rate was evaluated by the Persian version of celiac disease adherence test (CDAT) questionnaire. Results were analyzed based on intention-to-treat (ITT) analysis.

**Results:** Results of the ANCOVA test showed that the mean score of knowledge about celiac disease and gluten in the intervention group was significantly higher compared with the control group immediately after intervention (p = 0.002) and 3 months post-intervention (p = 0.03). In terms of gluten-free food item selection, the intervention group achieved a significantly better score than the control group immediately after intervention (p < 0.001) as well as 3 months post-intervention (p < 0.001). Additionally, there was a significant difference in the CDAT score between the two groups 3 months post-intervention (p = 0.02).

**Conclusion:** Evidence suggests that group-based education was an effective intervention among patients with celiac disease to improve knowledge and adherence to a GFD. Trial registration IRCT code: IRCT20080904001197N21; registration date: 5/23/2019.

**Keywords:** Adherence; CDAT; Celiac disease; Group-based education; Knowledge.

- 36 references
The patient with irritable bowel syndrome-type symptoms: when to investigate and how?


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DOI: 10.1097/MOG.0000000000000686

Abstract

Purpose of review: Irritable bowel syndrome (IBS) is a very common disorder whose clinical presentation varies considerably between patients as well as within the same individual over time. Many of its symptoms, such as pain, diarrhea, constipation and bloating, may be manifestations of a host of other gastrointestinal diseases; some accompanied by increased mortality. This presents the clinician with a real dilemma: how to sensibly investigate the patient in which one suspects IBS but there is a nagging doubt that 'it could be something else'? Could one miss 'something serious'? This short review attempts to provide both an evidence-based response to these vexing questions and a practical guide to detecting alternative diagnoses in the subject with IBS-type symptoms.

Recent findings: Clinical features, patient demographics and the clinical context can help to significantly narrow the differential diagnosis of the
individual with IBS-type symptoms and may permit a positive diagnosis of IBS. The advent of noninvasive serological and stool tests has greatly facilitated differentiation from celiac disease and inflammatory bowel disease, respectively. In the older, female diarrhea sufferer microscopic colitis should be considered. The role of bile acid diarrhea in the individual with diarrhea-predominant IBS is emphasized; the status of small intestinal bacterial overgrowth in IBS remain uncertain.

**Summary:** Attention to detail in the clinical evaluation of the individual with IBS-like symptoms will facilitate a selective and targeted approach to investigation. Wherever indicated, widely available serological and fecal tests will serve to bolster the diagnosis by excluding other options. Proceeding to more invasive testing should be dictated by clinical presentation and scenario with the threshold for intervention being generally lower among those with prominent diarrhea.

**Full-text links**

107. **The role of histopathology in the diagnosis and management of coeliac disease and other malabsorptive conditions**


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**PMID:** [33382496](https://www.ncbi.nlm.nih.gov/pubmed/33382496)
Abstract

Most absorption of nutrients takes place in the proximal small intestine, and the most common disorders leading to malabsorption are associated with a morphological abnormality in the duodenal mucosa that is appreciable in histological sections of biopsy specimens. Coeliac disease is the most well-known example, causing intraepithelial lymphocytosis, inflammation and villous atrophy in the duodenum. Remarkably similar inflammatory changes can be induced by other processes, including medications, e.g. angiotensin II receptor blockers and immune checkpoint inhibitors, immune dysregulation disorders, e.g. common variable immunodeficiency and autoimmune enteropathy, infections, collagenous sprue, and tropical sprue. However, there are often subtle histological differences from coeliac disease in the type of inflammatory infiltrate, the presence of crypt apoptosis, and the extent and type of inflammation beyond the duodenum. The clinical setting and serological investigation usually allow diagnostic separation, but some cases remain challenging. Histopathology is also important in assessing the response to treatment, such as the change in villous architecture caused by a gluten-free diet, or the response to cessation of a potentially causative medication. This review examines the practical role that histopathology of duodenal biopsy specimens plays in the assessment and management of inflammatory malabsorptive processes of the proximal small intestine, with a particular emphasis on coeliac disease.

Keywords: coeliac disease; enteropathy; gluten-free diet; intraepithelial lymphocytosis; malabsorption; medication reaction; villous atrophy.

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107 references

Full-text links
Gastrointestinal Food Allergies and Intolerances


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• DOI: 10.1016/j.gtc.2020.10.006

Abstract

Adverse reactions to food include immune-mediated food allergies, celiac disease, and nonimmune-mediated food intolerances. Differentiating between these many disorders is important to guide us toward appropriate testing and management. Double-blind placebo-controlled food challenges are the gold standard for food allergy diagnosis but are difficult and time-consuming. In place of this, strong clinical history, other supportive tests, and oral food challenges are helpful. Some commonly available tests for food allergy and intolerances lack sufficient evidence for efficacy. Food intolerance diagnosis is largely based on history and supported by symptom improvement with appropriate dietary manipulation.
Keywords: Allergy testing; Anaphylaxis; Food allergy; Food intolerance; Food protein-induced enterocolitis syndrome; Immunoglobulin G testing; Irritable bowel syndrome; Oral allergy syndrome.

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Conflict of interest statement

Disclosure E. Hon has no conflict of interest to disclose. S. Gupta is a consultant for Adare, Abbott, Allakos, Gossamer Bio, Receptos, and Medscape; royalties UpToDate; research support Shire.

Publication types

- Review

109. Involvement of clinical characteristics and HLA-DQ2 genotypes in paediatric patients with coeliac disease suffering from allergies


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Impact of a Gluten-Free Diet on Quality of Life and Health Perception in Patients with Type 1 Diabetes and Asymptomatic Celiac Disease

J Clin Endocrinol Metab. 2021 Feb 1;dgaa977. doi: 10.1210/clinem/dgaa977. Online ahead of print.

Authors

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Abstract

**Context:** Celiac disease (CD) is a common comorbidity seen in patients with type 1 diabetes (T1D) and is frequently asymptomatic. As chronic conditions requiring significant lifestyle changes, there are limited reports assessing changes in health-related quality of life (HRQoL) during transition to a gluten-free diet (GFD) in patients with both T1D and who are asymptomatic for CD.

**Objective:** To prospectively assess HRQoL and health perception in children and adults with T1D and asymptomatic CD after randomization to GFD versus usual diet.

**Design, setting, and participants:** Patients with T1D aged 8-45 years without CD symptoms were serologically screened for CD, with positive results confirmed with intestinal biopsy. Participants were randomized in an open-label fashion to a GFD or gluten-containing diet (GCD) for 12 months. Generic and diabetes-specific HRQoL and self-perceived wellness (SPW) were assessed longitudinally.

**Results:** 2,387 T1D patients were serologically screened. CD was biopsy-confirmed in 82 patients and 51 participants were randomized to a GFD (N=27) or GCD (N=24). Excellent adherence to the assigned diets was observed. Overall, no changes in generic (P=0.73) or diabetes-specific HRQoL (P=0.30), or SPW (P=0.41) were observed between groups over 12 months. HemoglobinA1c (HbA1c) and GI symptoms were consistent predictors of HRQoL and SPW.
Conclusions: HRQoL and SPW were not significantly impacted by the adoption of a GFD over 12 months, but worsened with symptom onset and increased HbA1c. Our findings indicate that transition to a GFD can be made successfully in this population without adversely impacting quality of life.

Keywords: celiac disease; gluten-free diet; health perception; quality of life; type 1 diabetes.

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111. **Proteolysis efficiency and structural traits of corn gluten meal: Impact of different frequency modes of a low-power density ultrasound**


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Abstract

The influence of varying frequency modes of a low-power density ultrasound (LPDU) on the enzymolysis efficacy and structural property of corn gluten meal (CGM) was investigated. Sonication pretreatment (of CGM) with sequential and simultaneous duple-frequency modes enhanced notably the relative enzymolysis efficiency, compared to other LPDU frequency modes. With a sequential duple-frequency of 20/40 kHz showing the most significant effect, the maximum value of enzymolysis efficiency and protein dissolution rate were 15.99% and 61.69%, respectively. Changes in the surface hydrophobicity, secondary structure and microstructure revealed alterations of conformation of CGM by ultrasound-induced effect. Furthermore, the molecular weight distribution CGM hydrolysates primarily distributed in 200-500 Da following ultrasonication. Sonication efficaciously enhanced the susceptibility of CGM to alcalase proteolysis. Thus, the use of various LPDU frequency modes in pretreating target proteins (CGM) may be considered as a practical approach to improve protein-enzyme reactions (proteolysis).

Keywords: Corn gluten meal; Enzymolysis; Frequency modes; Low-power density ultrasound; Microstructure; Surface hydrophobicity.

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MeSH terms

- Glutens / chemistry
- Glutens / metabolism*
- Hydrophobic and Hydrophilic Interactions
- Molecular Weight
- Protein Structure, Secondary
- Proteolysis
- Sonication
- Subtilisins / metabolism
• Zea mays / chemistry
• Zea mays / metabolism*

Substances

• Glutens
• Subtilisins

Full-text links

112. Irritable bowel syndrome and Parkinson's disease risk: register-based studies


Authors

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Abstract

To examine whether irritable bowel syndrome (IBS) was related to the future risk of Parkinson's disease (PD), we conducted a nested case-control study in the Swedish total population including 56,564 PD cases identified from the Swedish Patient Register and 30 controls per case individually matched by sex and year of birth. Odds ratios (ORs) with 95% confidence intervals (CIs) for having a prior diagnosis of IBS were estimated using conditional logistic regression. We furthermore conducted a cohort study using the Swedish Twin Registry following 3046 IBS patients identified by self-reported abdominal symptoms and 41,179 non-IBS individuals. Through Cox proportional hazard models, we estimated hazard ratios (HRs) and 95% CIs for PD risk. In the nested case-control study, 253 (0.4%) PD cases and 5204 (0.3%) controls had a previous IBS diagnosis. IBS diagnosis was associated with a 44% higher risk of PD (OR = 1.44, 95% CI 1.27-1.63). Temporal relationship analyses showed 53% and 38% increased risk of PD more than 5 and 10 years after IBS diagnosis, respectively. In the cohort analysis based on the Swedish Twin Registry, there was no statistically significantly increased risk of PD related to IBS (HR = 1.25, 95% CI = 0.87-1.81). Our results suggest a higher risk of PD diagnosis after IBS. These results provide additional evidence supporting the importance of the gut-brain axis in PD.

Conflict of interest statement

The authors declare no competing interests.
Grant support

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- 2017-02175;2013-02488/Vetenskapsrådet (Swedish Research Council)

Full-text links

113. "ASKing" the Right Questions About Screening for Celiac Disease


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PMID: 33079752
DOI: 10.14309/ajg.0000000000001026

Abstract

Make a distinction between investigating symptoms and screening for disease. Understand the performance characteristics of a test for those with symptoms and for screening those without symptoms, whether at elevated risk or average risk of disease. Positive test results require patient education and follow-up. Importantly, screening should be advantageous to an individual, and disease treatment should be in their interest. The practical application of these principles in relation to population-based Celiac disease screening may be difficult, as a large Colorado study has found.
Comment on

- Mass Screening for Celiac Disease: The Autoimmunity Screening for Kids Study.


PMID: 32701732

- 9 references

Publication types

- Comment

MeSH terms

- Autoimmunity
- Celiac Disease* / diagnosis
- Celiac Disease* / diet therapy
- Celiac Disease* / epidemiology
- Colorado
- Diet, Gluten-Free
- Humans
- Mass Screening

Full-text links

114. Rationale for Timing of Follow-Up Visits to Assess Gluten-Free Diet in Celiac Disease Patients Based on Data Mining

Authors

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PMID: 33503952
DOI: 10.3390/nu13020357

Abstract

The assessment of compliance of gluten-free diet (GFD) is a keystone in the supervision of celiac disease (CD) patients. Few data are available documenting evidence-based follow-up frequency for CD patients. In this work we aim at creating a criterion for timing of clinical follow-up for CD patients using data mining. We have applied data mining to a dataset with 188 CD patients on GFD (75% of them are children below 14 years old), evaluating the presence of gluten immunogenic peptides (GIP) in stools as an adherence to diet marker. The variables considered are gender, age, years following GFD and adherence to the GFD by fecal GIP. The results identify patients on GFD for more than two years (41.5% of the patients) as more prone to poor compliance and so needing more frequent follow-up than patients with less than 2 years on GFD. This is against the usual clinical practice of following less patients on long term GFD, as they are supposed to perform better. Our results support different timing follow-up frequency taking into consideration the number of years on GFD, age and gender. Patients on long term GFD should have a more frequent monitoring as they show a higher level of gluten exposure. A gender perspective should also be considered as non-compliance is partially linked to gender in our results: Males tend to get more gluten
exposure, at least in the cultural context where our study was carried out. Children tend to perform better than teenagers or adults.

**Keywords:** case management; celiac disease; data mining gluten free diet; evidence-based practice; gluten proteins; immunogenicity; treatment adherence and compliance.

**Full-text links**

115. **Structural validation and dyadic child-parent measurement invariance of the celiac disease quality of life questionnaire**


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**PMID:** [33470699](https://www.ncbi.nlm.nih.gov/pubmed/33470699)

**DOI:** [10.1097/MEG.0000000000002051](https://doi.org/10.1097/MEG.0000000000002051)

**Abstract**

**Objective:** The celiac disease quality of life questionnaire (CDDUX) is used widely in numerous languages worldwide. However, it's structural and construct validity and child-parent invariance had not been thoroughly examined. The objective of this study was to examine the psychometric
properties of the 12-item CDDUX and the extent to which it meets the acceptable requirements of reliability and structural and convergent validity, as well as its child-parent invariance.

**Methods:** In this cross-sectional study, 126 dyads of children aged 8-18 years and their parents completed the Hebrew version self-report and parent-proxy report CDDUX. Recently developed methods to examine psychometric properties and to measure invariance of dyadic samples were used while properly accounting for nonindependence in measurement patterns.

**Results:** A three-factor structure, each with sufficient internal consistency, is confirmed for both children and parents. Removing a single indicator of the diet subscale resulted in full configural ($\chi^2(181) = 202.277, P > 0.05, \text{RMSEA} = 0.026$) and metric ($\chi^2(189) = 209.543, P > 0.05, \text{RMSEA} = 0.043$) invariance of the measure between children and parents. However, this occurred only in partial-scalar ($\chi^2(198) = 229.813, P > 0.05, \text{RMSEA} = 0.031$) and uniqueness invariance, which is nevertheless sufficient for meaningful comparison between the groups.

**Conclusion:** Overall, with minor modifications, the Hebrew version of the CDDUX was found to be a valid measure of children's celiac-related quality of life when measured across children's self-reports and parent-proxy reports. The CDDUX provides meaningful measurement and allows child-parent comparison.

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**Full-text links**

116. [HELICOBACTER PYLORI INFECTION in CHILDREN with CONCURRENT CELIAC DISEASE and TYPE 1 DIABETES MELLITUS](https://doi.org/10.1159/000514276)
Abstract

Objectives: Data regarding Helicobacter pylori (Hp) infection frequency in concurrent celiac disease (CD) and type 1 diabetes mellitus (T1DM) (CD+T1DM) are anecdotal. This study aimed to evaluate the association between Hp and concomitant CD+T1DM in children.

Methods: In this two-center, case-control study, children who underwent esophago-gastro-duodenoscopy were studied. CD diagnosis was established by favorable histology and serology. Hp infection was confirmed by both histology and the rapid urease test. Patients were divided into three groups as CD only (CDo), CD+T1DM, and non-CD children who underwent endoscopy as controls.

Results: Among the 1431 esophago-gastro-duodenoscopies performed, 783 cases were eligible. Overall, 215 cases had CDo (mean age: 9.12±4.18 years, 58.1% girls), 63 cases had CD+T1DM (mean age: 9.29±4.46 years, 50.8% girls) and 505 cases were controls (mean age: 9.69±4.52 years, 56.6% girls). Hp infection rate was significantly lower in CD+T1DM group (controls: 49.7% vs CDo: 32.1% vs CD+T1DM: 20.6%, p<0.01). After adjustment for age, gender, and socioeconomic status, the Hp infection rate was still significantly low (aOR: 1.57, 95% CI: 1.35 - 1.83, p<0.01). A difference in Hp infection rate between controls and CDo group (aOR: 1.43, 95% CI: 1.09 - 2.12, p<0.05), and between CDo and CD+T1DM (aOR: 0.89, 95% CI: 0.65 - 1.54, p<0.05) group was significant. The severity of duodenal lesions and the presence of Hp infection was not correlated in all celiac children (r: 0.113, p>0.05).

Conclusion: The frequency of Hp infection was significantly lower in CD+T1DM children, compared to the CDo group and the controls.

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This study investigates the use of sprouted oat flour as a substrate to develop a novel gluten-free beverage by fermentation with a probiotic (*Lactobacillus plantarum* WCFS1) starter culture. Physicochemical, microbiological, nutritional and sensory properties of sprouted oat fermented beverage (SOFB) were characterized. After fermentation for 4 h, SOFB exhibited an acidity of 0.42 g lactic acid/100 mL, contents of lactic and acetic acids of 1.6 and 0.09 g/L, respectively, and high viable counts of probiotic starter culture (8.9 Log CFU/mL). Furthermore, SOFB was a good source of protein (1.7 g/100 mL), β-glucan (79 mg/100 mL), thiamine (676 μg/100 mL), riboflavin (28.1 μg/100 mL) and phenolic compounds (61.4 mg GAE/100 mL), and had a high antioxidant potential (164.3 mg TE/100 mL). Spoilage and pathogenic microorganisms
were not detected in SOFB. The sensory attributes evaluated received scores higher than 6 in a 9-point hedonic scale, indicating that SOFB was well accepted by panelists. Storage of SOFB at 4 °C for 20 days maintained *L. plantarum* viability and a good microbial quality and did not substantially affect β-glucan content. SOFB fulfils current consumer demands regarding natural and wholesome plant-based foods.

**Keywords:** beverage; gluten-free; lactic acid fermentation; oat; sprouting.

**Conflict of interest statement**

The authors declare no conflict of interest.

- 68 references
- 5 figures

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- AGL2015-67598-R/MINECO/FEDER

**Full-text links**

[118. Do gastroenterologists have medical inertia towards coeliac disease? A UK multicentre secondary care study](https://doi.org/10.1136/bmjgast-2020-000544)

**Authors**

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Objective: This study aimed to assess if there is secondary care medical inertia towards coeliac disease (CD).

Design: Group (1): Time from primary care presentation to diagnostic endoscopy was quantified in 151 adult patients with a positive endomysial antibody test and compared with 92 adult patients with histologically proven inflammatory bowel disease (IBD). Group (2): Across four hospitals, duodenal biopsy reports for suspected CD were reviewed (n=1423). Group (3): Clinical complexity was compared between known CD (n=102) and IBD (n=99) patients at their respective follow-up clinic appointments. Group (4): 50 gastroenterologists were questioned about their perspective on CD and IBD.

Results: Group (1): Suspected coeliac patients waited significantly longer for diagnostic endoscopy following referral (48.5 (28-89) days) than suspected patients with IBD (34.5 (18-70) days; p=0.003). Group (2): 1423 patients underwent diagnostic endoscopy for possible CD, with only 40.0% meeting guidelines to take four biopsies. Increased diagnosis of CD occurred if guidelines were followed (10.1% vs 4.6% p<0.0001). 12.4% of newly diagnosed CD patients had at least one non-diagnostic gastroscopy in the 5 years prior to diagnosis. Group (4): 32.0% of gastroenterologists failed to identify that CD
has greater prevalence in adults than IBD. Moreover, 36.0% of gastroenterologists felt that doctors were not required for the management of CD.

**Conclusion:** Prolonged waiting times for endoscopy and inadequacies in biopsy technique were demonstrated suggesting medical inertia towards CD. However, this has to be balanced against rationalising care accordingly. A Coeliac UK National Patient Charter may standardise care across the UK.

**Keywords:** antiendomysial antibodies; coeliac disease; endoscopic procedures; gluten; inflammatory bowel disease.

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**Conflict of interest statement**

Competing interests: None declared.

- 39 references

**Full-text links**

119. [Gliadin Sequestration as a Novel Therapy for Celiac Disease: A Prospective Application for Polyphenols](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8626488/)


**Authors**

Charlene B Van Buiten ¹, Ryan J Elias ²

**Affiliations**
Celiac disease is an autoimmune disorder characterized by a heightened immune response to gluten proteins in the diet, leading to gastrointestinal symptoms and mucosal damage localized to the small intestine. Despite its prevalence, the only treatment currently available for celiac disease is complete avoidance of gluten proteins in the diet. Ongoing clinical trials have focused on targeting the immune response or gluten proteins through methods such as immunosuppression, enhanced protein degradation and protein sequestration. Recent studies suggest that polyphenols may elicit protective effects within the celiac disease milieu by disrupting the enzymatic hydrolysis of gluten proteins, sequestering gluten proteins from recognition by critical receptors in pathogenesis and exerting anti-inflammatory effects on the system as a whole. This review highlights mechanisms by which polyphenols can protect against celiac disease, takes a critical look at recent works and outlines future applications for this potential treatment method.

**Keywords:** celiac disease; epigallocatechin gallate; gliadin; gluten; polyphenols; protein sequestration.

**Conflict of interest statement**

The authors declare no conflict of interest.
Granular Deposits of IgA in the Skin of Coeliac Patients Without Dermatitis Herpetiformis: A Prospective Multicentric Analysis


Authors

Emiliano Antiga, Roberto Maglie, Gabriele Lami, Alessandro Tozzi, Veronica Bonciolini, Francesca Calella, Beatrice Bianchi, Elena Del Bianco, Daniela Renzi, Edoardo Mazzarese, Antonino S Calabrò, Marzia Caproni

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DOI: 10.2340/00015555-3742

Free article

Abstract

Granular deposits of IgA represent the specific cutaneous marker of dermatitis herpetiformis. The prevalence of IgA deposits in the skin of patients with coeliac disease without dermatitis herpetiformis remains unknown. In this prospective case-control study, skin biopsies from newly diagnosed coeliac patients without dermatitis herpetiformis were analysed by direct
immunofluorescence. Controls included healthy volunteers and patients with both bowel symptoms and skin eruptions unrelated to coeliac disease. Clinical data and serum level of anti-tissue transglutaminase and anti-epidermal transglutaminase IgA antibodies were collected from patients and controls. Granular deposits of IgA or IgA1 in the skin were found in 29 out of 45 patients with coeliac disease (64.4%), and in none of the included controls (specificity 100%; sensitivity 64.4%). Positive direct immunofluorescence correlated significantly with an increased serum level of anti-epidermal transglutaminase IgA antibodies (p < 0.005). This study shows that granular deposits of IgA represent a low sensitive, but highly specific, cutaneous marker of coeliac disease independent of dermatitis herpetiformis.

Keywords: coeliac disease; dermatitis herpetiformis; direct immunofluorescence; epidermal transglutaminase; gastroenterology; granular deposit; immunoglobulin A; general dermatology.

Full-text links

121. Evaluation of mesenteric artery disease in patients with severe aortic valve stenosis


Authors

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Abstract

The aim of this study is to evaluate the mesenteric artery stenosis (MAS) in routinely performed CT angiography (CTA) of patients with severe aortic stenosis (AS) planned for transcatheter aortic valve implantation (TAVI) before the procedure. Patients with AS (AS group) who routinely underwent CTA before the TAVI procedure due to severe AS and patients who had CTA for other indications (control group) were retrospectively and sequentially scanned. The demographic characteristics of the patients in both groups were similar. Calcification and stenosis in the mesenteric arteries were recorded according to the localization of celiac truncus, superior mesenteric artery (SMA) and inferior mesenteric artery (IMA). Class 0-3 classification was used for calcification score. Stenoses with a stenosis degree ≥50% were considered as significant. A total of 184 patients, 73 patients with severe AS and 111 control groups, were included in the study. SMA and IMA calcification scores of patients with AS were significantly higher than the control group (p=0.035 for SMA and p=0.020 for IMA). In addition, the rate of patients with significant MAS in at least 1 artery (45.2% vs 22.5%, p=0.001) and the rate of patients with significant stenosis in multiple arteries were also significantly higher in the AS group (8.2% vs 1.8%, p=0.037). According to the study results, patients with AS are at a higher risk for MAS. Chronic mesenteric ischemia should be kept in mind in patients with AS who have symptoms such as non-specific abdominal pain and weight loss.

**Keywords:** aorta; atherosclerosis; ischemia.

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**Conflict of interest statement**

Competing interests: None declared.
122. **Letter: no-biopsy pathway for diagnosing adult coeliac disease-authors' reply**


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- PMID: 33368505
- DOI: 10.1111/apt.16195

No abstract available

- 9 references

Publication types

- Letter

123. **Point-of-Care test screening versus Case finding for paediatric coeliac disease: A pragmatic study in primary care**

Authors

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Illness Identity in Adolescents With Celiac Disease


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PMID: 32932383
DOI: 10.1097/MPG.000000000002946
Abstract

**Objectives:** The aim was to examine the reliability and validity of the Illness Identity Questionnaire (IIQ) among adolescents with celiac disease (CD), to describe their illness identity characteristics, and to examine relationships between illness identity and self-reported participation in food-related activities and quality of life.

**Methods:** Adolescents with CD (n = 91) were recruited for this cross-sectional study via social media interest groups. Participants completed online questionnaires: the IIQ, the CD Children's Activities Chart (CD-Chart), and the Pediatric Quality of Life Inventory (PedsQL).

**Results:** Internal reliability was established for IIQ items (α = 0.87) and for its 4 components (α = 0.75--0.90). The positive components (acceptance, enrichment) significantly differed from the negative components (rejection, engulfment), t(90) = 11.45, P < 0.001, d = 1.98. Feelings were more positive (M = 3.48, SD = 0.67) than negative (M = 2.06, SD = 0.76). The total IIQ was positively associated with the CD-Chart amount of activities (r = 0.30, P < 0.01) and enjoyment (r = 0.34, P < 0.001) and with the PedsQL social scale (r = 0.53, P < 0.001).

**Conclusions:** The IIQ established acceptable reliability and validity. In all, the adolescents with CD exhibited an illness identity profile that was more positive and adaptive than negative. The IIQ can contribute to understanding the developmental status of illness identity during the critical transition process from adolescence to adulthood.

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**Conflict of interest statement**

The authors report no conflicts of interest.
125. **Gut microbiota as a new player in children with celiac disease**


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- PMID: 33448512
- DOI: 10.1111/jgh.15322

*No abstract available*

- 10 references

**Publication types**

- Editorial

**Full-text links**

126. **Endovascular Management of Isolated Superior Mesenteric Artery Dissecting**
Isolated superior mesenteric artery (SMA) dissecting aneurysm is frequently symptomatic and potentially catastrophic; thus, it usually requires endovascular treatment. The endovascular management can be challenging in certain cases as catheterization of the collapsed true lumen is often very difficult. This case report is to describe a new approach for catheterization of the true lumen of the SMA in a case of isolated SMA dissecting aneurysm. A 63-year-old male with an SMA dissecting aneurysm underwent stent-graft placement for treatment. Catheterization of the true lumen via the
anterograde approach was unsuccessful because of angulation and collapse of the SMA true lumen as a result of the dissecting aneurysm. A guidewire was passed through the collaterals from the celiac artery and retrogradely passed across the collapsed SMA true lumen into the aorta. We then used a snare that had been delivered through the contralateral femoral access to capture and retrieve the guidewire. A delivery system was advanced into the SMA, and a stent graft was successfully deployed to occlude the dissecting aneurysm. This report introduces a new feasible retrograde approach that provides access to the SMA true lumen via celiac collaterals in cases of difficult antegrade catheterization of an SMA dissecting aneurysm.

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Publication types

- Case Reports

MeSH terms

- Aneurysm, Dissecting / diagnostic imaging
- Aneurysm, Dissecting / physiopathology
- Aneurysm, Dissecting / surgery*
- Blood Vessel Prosthesis
- Blood Vessel Prosthesis Implantation* / instrumentation
- Celiac Artery / diagnostic imaging
- Celiac Artery / physiopathology*
- Collateral Circulation*
- Endovascular Procedures* / instrumentation
- Humans
- Male
- Mesenteric Artery, Superior / diagnostic imaging
- Mesenteric Artery, Superior / physiopathology
- Mesenteric Artery, Superior / surgery*
- Middle Aged
- Splanchnic Circulation*
- Stents
- Treatment Outcome

Full-text links
127. **STRUCTURAL BASES OF GASTROINTESTINAL MOTILITY CHANGES IN PARKINSON'S DISEASE: STUDY IN RATS**

[Article in En, Portuguese]

**Authors**

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**PMCID:** [PMC7812683](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7812683/)  
**DOI:** [10.1590/0102-67202020003e1548](https://doi.org/10.1590/0102-67202020003e1548)

Free PMC article

**Abstract**

in **English, Portuguese**

**Background:** Gastrointestinal disorders are frequently reported in patients with Parkinson's disease whose disorders reduce the absorption of nutrients and drugs, worsening the clinical condition of patients. However, the
mechanisms involved in modifying gastrointestinal pathophysiology have not yet been fully explained.

**Aim:** To evaluate its effects on gastrointestinal motility and the involvement of the vagal and splanchnic pathways.

**Methods:** Male Wistar rats (250-300 g, n = 84) were used and divided into two groups. Group I (6-OHDA) received an intrastriatal injection of 6-hydroxydopamine (21 µg/animal). Group II (control) received a saline solution (NaCl, 0.9%) under the same conditions. The study of gastric emptying, intestinal transit, gastric compliance and operations (vagotomy and splanchnctomy) were performed 14 days after inducing neurodegeneration. Test meal (phenol red 5% glucose) was used to assess the rate of gastric emptying and intestinal transit.

**Results:** Parkinson's disease delayed gastric emptying and intestinal transit at all time periods studied; however, changes in gastric compliance were not observed. The delay in gastric emptying was reversed by pretreatment with vagotomy and splanchnctomy+celiac gangliectomy, thus suggesting the involvement of such pathways in the observed motor disorders.

**Conclusion:** Parkinson's disease compromises gastric emptying, as well as intestinal transit, but does not alter gastric compliance. The delay in gastric emptying was reversed by truncal vagotomy, splanchnctomy and celiac ganglionectomy, suggesting the involvement of such pathways in delaying gastric emptying.

**Racional:** Distúrbios gastrintestinais são frequentemente relatados em pacientes com doença de Parkinson cujos distúrbios reduzem a absorção de nutrientes e fármacos, agravando o quadro clínico dos pacientes. No entanto, os mecanismos envolvidos na alteração da fisiopatologia gastrintestinal ainda não foram totalmente elucidados.

**Objetivo:** Avaliar os seus efeitos sobre a motilidade gastrintestinal e o envolvimento das vias vagal e esplâncnica.

**Métodos:** Ratos Wistar machos (250-300 g, n=84) foram utilizados e divididos em dois grupos. O grupo I (6-OHDA) recebeu injeção intraestriatal de 6-hidroxi dopamina (21 µg/animal). O grupo II (controle) recebeu solução salina (NaCl, 0,9%) nas mesmas condições. O estudo do esvaziamento gástrico,
trânsito intestinal, complacência gástrica e operações (vagotomia e esplancnotomia) foram realizadas 14 dias após a indução da neurodegeneração. Refeição teste (vermelho de fenol+glicose 5%) foi utilizada para avaliar a taxa de esvaziamento gástrico e o trânsito intestinal.

**Resultados::** A doença de Parkinson retardou o esvaziamento gástrico e o trânsito intestinal em todos os tempos estudados; porém, alterações da complacência gástrica não foram observadas. O retardo do esvaziamento gástrico foi revertido por pré-tratamento com vagotomia e esplancnotomia+gangliectomia celíaca, sugerindo assim, o envolvimento de tais vias nos distúrbios motores observados.

**Conclusão::** A doença de Parkinson compromete o esvaziamento gástrico, bem como o trânsito intestinal, mas não altera a complacência gástrica. O retardo do esvaziamento gástrico foi revertido pela vagotomia troncular, esplancnotomia e gangliectomia celíaca, sugerindo o envolvimento de tais vias no retardo do esvaziamento gástrico.

**Conflict of interest statement**

Conflict of interest: none

- [20 references](#)
- [5 figures](#)

**Full-text links**

128. Prevalence of celiac disease in low and high risk population in Asia-Pacific region: a systematic review and meta-analysis


**Authors**
Abstract

This systematic review and meta-analysis study was conducted to estimate the pooled prevalence of CD in low and high risk groups in this region. Following keywords were searched in the Medline, PubMed, Scopus, Web of Science and Cochrane database according to the MeSH terms; celiac disease, prevalence, high risk population and Asian-Pacific region. Prevalence studies published from January 1991 to March 2018 were selected. Prevalence of CD with 95% confidence interval (CI) was calculated using STATA software, version 14. The pooled sero-prevalence of CD among low risk group in Asia-Pacific region was 1.2% (95% CI 0.8-1.7%) in 96,099 individuals based on positive anti-tissue transglutaminase (anti-t-TG Ab) and/or anti-endomysial antibodies (EMA). The
The pooled prevalence of biopsy proven CD in Asia-Pacific among high and low risk groups was 4.3% (95% CI 3.3-5.5%) and 0.61% (95% CI 0.4-0.8%) in 10,719 and 70,344 subjects, respectively. In addition, the pooled sero-prevalence and prevalence of CD in general population was significantly higher in children compared with adults and it was significantly greater in female vs. male (P < 0.05). Our results suggest high risk individuals of CD are key group that should be specifically targeted for prevention and control measures, and screening may prove to have an optimal cost-benefit ratio.

**Conflict of interest statement**

The authors declare no competing interests.

- 77 references
- 4 figures

**Full-text links**

129. **Chronic Inflammatory Diseases - Diabetes Mellitus, Rheumatoid Arthritis, Coeliac Disease, Crohn's Disease, and Ulcerative Colitis Among the Offspring of Affected Parents: A Danish Population-Based Registry Study**


**Authors**

Vibeke Andersen 1 2 3, Andreas Kristian Pedersen 1, Sören Möller 4, Anders Green 4

**Affiliations**
Abstract

**Background:** Chronic inflammatory diseases (CID) may share aetiological factors across diseases. We used registry data to evaluate the risk of developing five common childhood CIDs dependent on the parents' disease status.

**Methods:** We performed a national population-based registry study by linking data from the national Danish health registers from January 1973 to March 2016 to evaluate any potential associations between parents' disease and development of CID among the offspring. Results were adjusted for parental age at birth, the decade of birth, gender of the child, and type of birth. A cohort of 2,699,449 liveborn children was established for investigating the primary outcome measures: diabetes mellitus (DM), rheumatoid arthritis (RA), coeliac disease, Crohn's disease (CD), and ulcerative colitis (UC) and all diseases combined (CID).

**Results:** Children with one CID affected parent (Hazard ratio (HR), 95% confidence interval (95% CI)=1.75 (1.72-1.79, p<0.001)), one multiple CID affected parent (HR=2.23 (2.11-2.34), p<0.001), and both parents affected (HR=3.10 (2.98-3.22), p<0.001) were at higher risk than children without CID affected parents. Children with DM, RA, and COE affected parents were at increased risk of three specific diseases (DM, RA and COE), whereas children
with CD and UC affected parents were at increased risk of two specific
diseases (CD and UC).

**Conclusion:** Children with CID affected parents were at increased risk of the
same CID as their parents as well as other specific CIDs dependent on the
parents' CID. Future studies should address the aetiology underlying these
findings to support the development of new strategies for prevention,
treatment, and cure.

**Keywords:** chronic inflammatory disease; coeliac disease; diabetes mellitus;
inflammatory bowel diseases; parents’ disease; population study; rheumatoid
arthritis.

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**Conflict of interest statement**

The authors have no conflicts of interest to declare that are relevant to the
content of this article.

- 33 references
- 2 figures

**Grant support**

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R104-A2195-B760, V Andersen). The funders did not influence the conduct of
the study, analysis, interpretation of the data, the writing of this report, or the
decision to publish, and have no financial relationships with any organisations
that might have an interest in the submitted work in the previous three years;
nor other relationships or activities that could appear to have influenced the
submitted work.

**Full-text links**

130. [Mass Screening for Celiac Disease: The Autoimmunity Screening for Kids Study](#)
Abstract

**Introduction:** The Autoimmunity Screening for Kids (ASK) study is a large scale pediatric screening study in Colorado for celiac disease (CD) and type 1 diabetes. This is a report of the CD outcomes for the first 9,973 children screened through ASK.

**Methods:** ASK screens children aged 1-17 years for CD using 2 highly sensitive assays for tissue transglutaminase autoantibodies (TGA): a radiobinding (RBA) assay for IgA TGA and an electrochemiluminescence (ECL) assay that detects all TGA isotypes. Children who test positive on either assay are asked to return for confirmatory testing. Those with a confirmed RBA TGA level ≥ 0.1 (twice the upper limit of normal) are referred to the Colorado Center for Celiac Disease for further evaluation; all others are referred to primary care.

**Results:** Of the initial 9,973 children screened, 242 children were TGA+ by any assay. Of those initially positive, 185 children (76.4%) have completed a
confirmation blood draw with 149 children (80.5%) confirming positive by RBA TGA. Confirmed RBA TGA+ was associated with a family history of CD (odds ratio [OR] = 1.83; 95% confidence interval 1.06-3.16), non-Hispanic white ethnicity (OR = 3.34; 2.32-4.79), and female sex (OR = 1.43; 1.03-1.98). Gastrointestinal symptoms of CD, assessed at the initial screening, were reported equally often among the RBA TGA+ vs TGA- children (32.1% vs 30.5%, P = 0.65).

**Discussion:** The initial results of this ongoing mass-screening program confirm a high prevalence of undiagnosed CD autoimmunity in a screened US population. Symptoms at initial screening were not associated with TGA status (see Visual abstract, Supplementary Digital Content 5, http://links.lww.com/AJG/B587).

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**Conflict of interest statement**

Conflict of Interest: E.L. serves as a consultant for Takeda Pharmaceuticals and IM Therapeutics. For all other authors, there are no conflicts of interest to disclose.

**Comment in**

- "ASKing" the Right Questions About Screening for Celiac Disease. Forbes GM.


  PMID: 33079752

- Does Size Really Matter?

  Coelho-Prabhu N, Kane S.

131. Celiac trunk segmental arterial mediolysis: a rare cause of arteriopathy


Authors

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Affiliation

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PMID: 33207894
DOI: 10.17235/reed.2020.7143/2020
Abstract

A 50-year-old male patient, without a previous medical history, presented sudden severe abdominal pain with no alterations in the blood analysis. A CT-Angiography (CTA) was performed that showed a wall thickening of the celiac trunk extended to the hepatic artery with a filiform lumen and no involvement of the splenic artery. There were no signs of intestinal or liver ischemia, therefore no further radiological tests were performed. The proteinogram and serology were normal, with no immunological and acute phase reactant markers, excluding vasculitis. It appeared as an isolated lesion with no signs of arterial dissection or pseudoaneurysms of the remaining abdominal vessels or the aorta. Therefore, it was considered as a Segmental Arterial Mediolisis (SAM).

Full-text links


Authors

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Affiliation

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PMID: 33429906
PMCID: PMC7826639
Abstract

The substitution of wheat gluten in the food industry is a relevant research area because the only known treatment for celiac disease is abstinence from this protein complex. The use of gluten-free cereals in dough systems has demonstrated that the viscoelastic properties of gluten cannot be achieved without the modification of the protein fraction. The quality of the final product is determined by the ability of the modification to form a matrix similar to that of gluten and to reach this, different methods have been proposed and tested. These procedures can be classified into four main types: chemical, enzymatic, physical, and genetic. This article provides a comprehensive review of the most recent research done in protein modification of cereal and pseudocereals for gluten substitution. The reported effects and methodologies for studying the changes made with each type of modification are described; also, some opportunity areas for future works regarding the study of the effect of protein modifications on gluten-free products are presented.

Keywords: gluten; maize; prolamin; protein modification; rice; sorghum.

Conflict of interest statement

The authors declare no conflict of interest.
Unexpected Diagnosis in an Adolescent With Bruises and Ecchymosis: Celiac Disease


Authors

Anil Er \textsuperscript{1}, Aykut Çağlar \textsuperscript{1}, Pinar Kuyum \textsuperscript{2}, Fatma Akgül \textsuperscript{1}, Emel Ulusoy \textsuperscript{1}, Hale Çitlenbik \textsuperscript{1}, Betül Yandim Aksoy \textsuperscript{2}, Durgül Yılmaz \textsuperscript{1}, Nur Arslan \textsuperscript{2}, Murat Duman \textsuperscript{1}

Affiliations

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PMID: 30211833
DOI: 10.1097/PEC.0000000000001597

Abstract

Acquired coagulopathy is a rare but challenging diagnosis for pediatric emergency physicians. Although the coagulopathy usually presents with mild skin and mucosal hemorrhages, it also can lead to life-threatening events. Thus, accurate interpretation of hints obtained from a detailed history, physical examination, and laboratory findings is essential for the prompt diagnosis and management. This case demonstrates an uncommon cause of coagulopathy; celiac disease that presented with spontaneous bruises and ecchymosis in an adolescent.

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Conflict of interest statement

Disclosure: The authors declare no conflict of interest.
Prevalence of gastrointestinal, cardiovascular, autonomic, and allergic manifestations in hospitalized patients with Ehlers-Danlos syndrome: a case-control study


Authors

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Affiliations

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PMID: 33410480
DOI: 10.1093/rheumatology/keaa926

Abstract

Objective: Previous observations suggest an association between Ehlers-Danlos syndrome (EDS) and gastrointestinal (GI), cardiovascular, immune, and autonomic nervous system dysfunction. We sought to determine whether a hospital diagnosis of EDS is associated with a higher prevalence of these
manifestations vs hospitalized patients without EDS. We also evaluated hospital outcomes.

**Methods:** 6,021 cases and matched controls were acquired from the 2016 National Inpatient Sample. 2,007 EDS patients were identified via ICD-10 code. After bivariate analyses, multivariate logistic regression models were used to adjust for potential confounders.

**Results:** GI conditions were found in 44% of EDS patients vs 18% of controls (odds ratio [OR]=3.57, confidence interval [CI]: 3.17-4.02, p < 0.0001), with irritable bowel syndrome, gastroparesis, and celiac disease strongly associated with EDS. Autonomic dysfunction, including postural orthostatic tachycardia syndrome (POTS), neurocardiogenic syncope, and orthostatic hypotension, was found in 20% of EDS patients vs 6% of controls (OR = 4.45, CI: 3.71-5.32, p < 0.0001). EDS patients were more likely to have food allergy (OR = 3.88, CI: 2.65-5.66, p < 0.0001) and cardiovascular complications, such as mitral valve disorders, aortic aneurysm, and dysrhythmias (OR = 6.16, CI: 4.60-8.23, p < 0.0001). These conditions remained highly-associated with EDS after considering confounders. EDS patients were 76% more likely to have longer-than-average hospitalizations (OR = 1.76, CI: 1.54-2.02, p < 0.0001).

**Conclusion:** GI, cardiovascular, autonomic, and allergic manifestations are significantly more prevalent in EDS patients compared with hospitalized patients without EDS. Physicians should consider EDS in patients with unexplained GI, cardiovascular, autonomic, and allergic conditions and exercise precautions when treating EDS patients in a hospital setting.

**Keywords:** Ehlers-Danlos syndrome; case-control study; hospitalization; prevalence.

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**Full-text links**
Prevalence, incidence and clinical features of SARS-CoV-2 infection in adult coeliac patients


Authors

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PMID: 33399400
DOI: 10.1097/MEG.0000000000001969

Abstract

Objectives: Data on SARS-CoV-2 disease (COVID-19) in adult coeliac disease (CD) are lacking. The aim of the present study is to evaluate the epidemiology and clinical features of COVID-19 in adult coeliac patients regularly followed-up at our centre since January 2015.

Methods: Data about general health status and clinical features of laboratory-confirmed COVID-19 were prospectively collected over the phone. Data about CD were retrospectively collected from clinical notes. Prevalence and incidence of COVID-19 were compared between the coeliac cohort and the figures in the general population of Lombardy, Northern Italy between 20 February to 5 June 2020 provided by the Italian National Institute of Health (Istituto Superiore di Sanità) and the Lombardy regional government.

Results: Nine out of 324 patients contracted COVID-19, thus resulting in a prevalence of 2.78% [95% confidence interval (CI) 0.98-4.58] and an incidence
rate of 8.15/1000 person-month (95% CI 4.24-15.66). Prevalence of COVID-19 ascertained by means of nasal swab was 1.79% (95% CI 0.22-3.35) and the incidence rate 5.26/1000 person-month (95% CI 2.19-12.63), without difference from the general population. Clinical type of CD, age, sex, duration and adherence to a gluten-free diet, and mucosal healing did not differ between coeliac patients with and without COVID-19. None of the 9 patients with COVID-19 required hospitalization.

**Conclusion:** Patients with CD do not seem to carry an increased risk of COVID-19 compared to the general population and their disease course is mild.

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**Full-text links**

136. [Reply to: Inflammatory bowel disease, celiac disease, and primary sclerosing cholangitis: is there a link?](https://www.gastrojournal.org/article/S0016-5085(21)00273-0/fulltext)


**Authors**

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- PMID: [33484688](https://www.ncbi.nlm.nih.gov/pubmed/33484688)
- DOI: [10.1053/j.gastro.2021.01.205](https://doi.org/10.1053/j.gastro.2021.01.205)
Response to Letter: 'Serological exclusion of coeliac disease: an audit of anti-tissue transglutaminase and immunoglobulin A testing'


Authors

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Affiliation

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PMID: 33369957
DOI: 10.1097/MEG.0000000000001770

No abstract available

2 references
Absence of the celiac trunk and anomalous very low origin of the common hepatic artery arising independently from the abdominal aorta just above aortic bifurcation in patient undergoing radical pancreaticoduodenectomy


Authors

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Affiliations

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- PMID: 33449141
- DOI: 10.1007/s00276-020-02666-6

Abstract

Purpose: Knowledge of anomalies of the celiac trunk is very important during various surgical procedures (such as pancreatic and gastric resections including Appleby operation, liver resections and liver transplantations) and as well as radiologic procedures (such as chemoembolization of pancreatic and hepatic tumors).
**Methods:** A 77-years-old woman was admitted to our department for surgical treatment of ampullary adenocarcinoma G2 confirmed in endoscopic retrograde cholangiopancreatography (ERCP) with papillotomy and ampullary biopsy. In the contrast-enhanced computed tomography, the ampullary tumor was not visible, but the main pancreatic duct within pancreatic head and isthmus was dilated (indirect radiological tumor signs). An absence of the celiac trunk (CT) was established via computed tomography. Therefore, computed tomography-based angiography (angio-CT) of the abdominal aorta (AA) was performed before operation.

**Results:** Angio-CT confirmed an extremely rare vascular anomaly: an absence of CT. The left gastric (LGA), splenic (SA), and common hepatic (CHA) arteries connected above origin of the superior mesenteric artery (SMA) from the AA. Pylorus-preserving pancreaticoduodenectomy (PD) was performed. This anomaly was also confirmed intraoperatively. The postoperative course was uneventful and the patient was discharged on postoperative day 10. There were no signs of recurrence of the tumor during the 6 months follow-up.

**Conclusion:** The proper preoperative identification of anomalies within major abdominal vessels and its relationship to the tumor is very important to avoid intraoperative vascular injury and major postoperative complications.

**Keywords:** Anatomic variation; Anomaly; Celiac trunk; Common hepatic artery; Pancreaticoduodenectomy.

- 3 references

**Full-text links**

Rosacea, Germs, and Bowels: A Review on Gastrointestinal Comorbidities and Gut-Skin Axis of Rosacea

Authors

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• PMID: 33507499
• DOI: 10.1007/s12325-021-01624-x

Abstract

Rosacea is a chronic inflammatory disease with complicated pathophysiology that involves genetic and environmental elements and dysregulation of innate and adaptive immunity, neurovascular responses, microbiome colonization or infection, resulting in recurrent inflammation. Rosacea has been reported associated with various gastrointestinal diseases including inflammatory bowel disease, celiac disease, irritable bowel syndrome, gastroesophageal reflux disease, Helicobacter pylori (HP) infection, and small intestine bacterial overgrowth (SIBO). The link may involve common predisposing genetic, microbiota, and immunological factors, comprising the theory of the gut-skin axis. Although the evidence is still controversial, interestingly, medications for eradicating SIBO and HP provided an effective and prolonged therapeutic response in rosacea, and conventional therapy for which is usually disappointing because of frequent relapses. In this article, we review the current evidence and discuss probable mechanisms of the association between rosacea and gastrointestinal comorbidities.
The impact of autoimmune systemic inflammation and associated medications on male reproductive health in patients with chronic rheumatological, dermatological, and gastroenterological diseases: A systematic review


Authors

Renata Finelli 1, Kristian Leisegang 2, Federica Finocchi 3, Salvatore De Masi 4, Ashok Agarwal 1, Giovanni Damiani 5, 6

Affiliations

1 American Center for Reproductive Medicine, Cleveland Clinic, Cleveland, OH, USA.
2 School of Natural Medicine, University of the Western Cape, Cape Town, South Africa.
Abstract

Autoimmune disorders currently affect 5%-8% of the global population, characterized by an aberrant chronic inflammatory response to self-antigens. The aim of this study was to systematically review the current available evidence investigating the impact of systemic autoimmune diseases and associated immunosuppressive treatment on fertility parameters of adult men. Clinical trials, observational studies, and case reports written in English and reporting semen analysis, evaluation of seminal oxidative stress, and/or sperm DNA fragmentation in patients affected by psoriasis and psoriatic arthritis, celiac disease, inflammatory bowel diseases, systemic lupus erythematosus, ankylosing spondylitis, hidradenitis suppurativa, uveitis, dermatomyositis, and rheumatoid arthritis were collected by searching on PubMed, EMBASE, OVID, Scopus, and Cochrane Library databases, with no limit of time. The study quality and the extent of bias in design, methods, and outcome assessment were evaluated by applying the Joanna Briggs Institute Critical Appraisal tools. Evidence suggested that various autoimmune diseases or relevant medications can adversely affect male fertility parameters and that patients may benefit of counseling and sperm cryopreservation. Clinical trials further investigating any adverse effect of autoimmunity and related thereby on male infertility are warranted, to develop appropriate guidelines for males diagnosed and treated for autoimmune disorders.

Keywords: autoimmunity; chronic inflammation; male infertility; semen analysis.

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141. Connecting coeliac disease to the AhR pathway


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1 Nature Reviews Gastroenterology & Hepatology, nrgasthep@nature.com.

PMID: 33173201
DOI: 10.1038/s41575-020-00388-z

No abstract available

142. Clinical features and management strategy of symptomatic spontaneous isolated celiac artery dissection
Abstract

Objectives: The aim of this study was to evaluate the clinical features and management strategy for patients with symptomatic spontaneous isolated celiac artery dissection (SICAD).

Methods: In this retrospective study, consecutive patients with symptomatic SICAD from two institutions were included. The demographics, clinical manifestations, comorbidities, imaging findings and treatment strategy selection were obtained from the medical records. The general epidemiological data, treatment regimens and clinical and follow-up outcomes were analysed.

Results: Patients were divided into the conservative treatment group (group A, n = 26) and endovascular treatment group (group B, n = 11). Of these 37
patients, extent of dissection in both groups included only celiac trunk (61.54% vs. 18.18%, \( p = 0.03 \)), common hepatic artery (CHA) and splenic artery (SA) (3.85% vs. 54.55%, \( p = 0.001 \)), CHA (7.69% vs. 18.18%, \( p = 0.57 \)), SA (23.08% vs. 9.09, \( p = 0.65 \)) and left gastric artery (LGA) (3.85% vs. 54.55%, \( p = 0.99 \)). Of note, the extension of the lesion in group A was shorter than that in group B. In addition, there were significantly more type IIb in group A than in group B (42.31% vs. 9.09%, \( p = 0.06 \)) and the mean length of dissection in group A was 42.3 ± 54.71 mm which was significantly shorter than that in the group B 58.45 ± 3.71 mm (\( p = 0.04 \)). During a median follow-up of 11.5 months, the 1, 3, 6 and 12 month follow-ups were completed in 100% (37/37), 100% (37/37), 94.59% (35/37) and 91.19% (34/37) of patients, respectively. The cumulative rate of persistent disease stability in patients with endovascular treatment group was higher than in that conservative treatment group at the 3, 6, 9 and 12 months (50% vs. 16.67%, \( p = 0.001 \); 80% vs. 37.5%, \( p =0.03 \); 100% vs. 62.5%, \( p = 0.012 \);100% vs. 91.67%, \( p = 0.02 \) respectively).

**Conclusion:** Most symptomatic SICAD have a tendency to persistent disease stability after conservative treatment. Risk factors for failed conservative treatment were length of dissection and branch involvement. Furthermore, endovascular treatment was associated with a high technical success and persistent disease stability rate, which might be reserved for patients with failed conservative treatment.

**Keywords:** Celiac artery; dissection; treatment.

**Full-text links**

[Why people follow a gluten-free diet? An application of health behaviour models](https://doi.org/10.1016/j.appet.2021.105136)


**Authors**

Vilma Xhakollari ¹, Maurizio Canavari ², Magda Osman ³
Abstract

**Purpose:** To understand factors affecting adherence to GFD by celiac and non-celiac people through the application of behavioural theories, Integrative Model (IM) and Multi Theory Model (MTM).

**Methods:** Analyses were conducted for a sample of 308 subjects, majority females, celiac and non-celiac. Adherence to GFD was measured considering two scales, self-declared adherence and scored adherence, in order to discern possible inconsistencies between what subjects believe and what they really do. Subsequently, adherence to GFD was modelled by considering constructs of MTM and IM. Moreover, the constructs were designed based on literature review. Ordered logit (OL) model was used to test the IM and MTM theoretical models.

**Results:** The findings show that adherence to GFD is affected mainly by attitudes towards GFD, self-efficacy, injunctive norms, knowledge about GFD and perceptions that GF products are expensive. Between the two models, IM and MTM, results show that all constructs of IM explain the behavior. Contrary, for MTM, results indicate only some constructs of the MTM explain adherence to GFD.

**Conclusions:** Results of this study should be considered for improving the adherence to GFD for celiac people. Furthermore, it is important to consider
the non-celiac people's perceptions for GFD and GF products. In other words an accurate information about the diet and products it is relevant for supporting people to make healthier food choices. Finally, as the results show, IM explain adherence to GFD better than MTM.

Keywords: adherence; celiac; gluten free diet; integrative model; multi theory model; non-celiac.

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Full-text links

144. Renal Denervation and Celiac Ganglionectomy Decrease Mean Arterial Pressure Similarly in Genetically Hypertensive Schlager (BPH/2J) Mice


Authors

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Affiliations

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- 4 Department of Pharmacology and Toxicology, Michigan State University, East Lansing (H.G., G.D.F.).
Renal denervation (RDNX) lowers mean arterial pressure (MAP) in patients with resistant hypertension. Less well studied is the effect of celiac ganglionectomy (CGX), a procedure which involves the removal of the nerves innervating the splanchnic vascular bed. We hypothesized that RDNX and CGX would both lower MAP in genetically hypertensive Schlager (BPH/2J) mice through a reduction in sympathetic tone. Telemeters were implanted into the femoral artery in mice to monitor MAP before and after RDNX (n=5), CGX (n=6), or SHAM (n=6). MAP, systolic blood pressure, diastolic blood pressure, and heart rate were recorded for 14 days postoperatively. The MAP response to hexamethonium (10 mg/kg, IP) was measured on control day 3 and postoperative day 10 as a measure of global neurogenic pressor activity. The efficacy of denervation was assessed by measurement of tissue norepinephrine. Control MAP was similar among the 3 groups before surgical treatments (≈130 mm Hg). On postoperative day 14, MAP was significantly lower in RDNX (-11±2 mm Hg) and CGX (-11±1 mm Hg) groups compared with their predenervation values. This was not the case in SHAM mice (-5±3 mm Hg). The depressor response to hexamethonium in the RDNX group was significantly smaller on postoperative day 10 (-10±5 mm Hg) compared with baseline control (-25±10 mm Hg). This was not the case in mice in the SHAM (day 10; -28±5 mm Hg) or CGX (day 10; -34±7 mm Hg) group. In conclusion, both renal and splanchnic nerves contribute to hypertension in BPH/2J mice, but likely through different mechanisms.

**Keywords:** arterial pressure; cause of death; femoral artery; heart rate; hypertension.

- 40 references
- 5 figures

**Full-text links**
LF NMR spectroscopy analysis of water dynamics and texture of Gluten-Free bread with cricket powder during storage


Authors

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6 Department of Bioenergy and Food Technology, Institute of Food Technology and Nutrition, University of Rzeszow, Rzeszow, Poland.

PMID: 33444100
DOI: 10.1177/1082013220987914

Abstract

The paper presents the effect of replacing starch (at 2%, 6% and 10%) with cricket powder (CP) on the water behavior studied by the $^1$H NMR method, as
well as the texture of gluten-free bread during 6-day storage. It was noticed that the bread crumb containing CP has lower water transport rate than the control bread crumb, while concluding that 2% CP stabilizes water transport throughout the entire staling time range. The NMR analyzes showed that the initial $T_{21}$ values are the higher, the more starch has been replaced with the CP, however, after 6 days of storage, all tested samples are characterized by similar values of the $T_{21}$ parameter. A decrease in long component of spin-spin relaxation time $T_{22}$ during storage was also observed. It has been noted that the replacement of starch to 2% and 6% CP causes an increase in the molecular dynamics of water. The less starch present, the greater the potential for bulk molecules to move. The observed changes at the molecular level resulted in macroscopic changes in the texture of the bread. After analyzing the hardness parameter of the tested breads, it was found that on the day of baking, bread without the addition of CP had significantly higher values of this parameter than breads with CP. For the sample without CP, the highest increase in total hardness change (123.93%) was noted during storage, which indicates the fastest texture change process. Based on the results obtained, it can be concluded that the use of cricket powder to enrich gluten-free bread can not only improve the nutritional value, but also effectively delay the process of bread staling.

**Keywords:** 1H NMR; Edible insects; bread staling; crumb properties; water behavior.

**Full-text links**

146. Guidelines for diagnosing coeliac disease: European Society Paediatric Gastroenterology, Hepatology and Nutrition

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No abstract available

Conflict of interest statement

Competing interests: None declared.

Publication types

- Review

Full-text links

147. Analyzing Gluten Content in Various Food Products Using Different Types of ELISA Test Kits


Authors
Abstract

Gluten is an insoluble protein produced when glutelins and prolamins, which are found in grains such as wheat, barley, and oats, combine to form an elastic thin film. This dietary gluten can cause severe contraction of the intestinal mucous membrane in some people, preventing nutrient absorption. This condition, called celiac disease (CD), affects approximately 1% of the world's population. The only current treatment for patients with CD and similar diseases is lifelong avoidance of gluten. To analyze the gluten content in food, various enzyme-linked immunosorbent assay (ELISA) tests are currently used. In this study, the gluten content in various food products was analyzed using different kinds of ELISA test kits. For gluten-free food, three different ELISA test kits mostly yielded values below the limit of detection. However, gluten was detected at 24.0-40.2 g/kg in bread, 6.5-72.6 g/kg in noodles, and 23.0-86.9 g/kg in different powder food samples. A significant difference ($p < 0.05$) in gluten content was observed for these gluten-containing food products. Reproducibility issues suggest that it is necessary to use several ELISA kits for the accurate detection and quantification of gluten in various food products rather than using one ELISA kit.

Keywords: ELISA; G12 antibody; R5 antibody; celiac disease; gluten analysis; gluten-free; sandwich method.

Conflict of interest statement

The authors declare no conflict of interest
Development and validation of a high-parameter mass cytometry workflow to decipher immunomodulatory changes in celiac disease


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PMID: 33452759
DOI: 10.1002/cyto.b.21986
Abstract

The advent of time-of-flight mass cytometry (CyTOF) has enabled high dimensional and unbiased examination of the immune system to simultaneous interrogate a multitude of parameters and gain a better understanding of immunologic data from clinical trial samples. Here we describe the development and validation of a 33-marker mass cytometry workflow for measuring gastrointestinal (GI) trafficking peripheral blood mononuclear cells (PBMCs) in patients with celiac disease (CeD). This panel builds upon identification of well-characterized immune cells and expands to include markers modulated in response to gluten challenge in patients with CeD. The CeD panel was optimized and validated according to accepted industry practice for validation of flow cytometry assays and builds upon established sample processing workflows for mass cytometry studies. Several critical parameters were evaluated during the assay development phase of this study including optimization of the sample processing steps, antibody specificity, and ensuring the panel as a whole performed to expectation. The panel was then validated using a fit-for-purpose approach tailored to the intended use of the data in the clinical trial. Validation included assessment of analytical parameters essential to understanding the reliability and robustness of the CeD panel such as intra-assay precision, inter-assay precision, inter-operator precision and sample processing stability. Together, this validated mass cytometry workstream provides robust and reproducible high-dimensional analysis of human peripheral blood immune cells to characterize patient samples from clinical trials.

Keywords: CyTOF; assay validation; celiac disease; mass cytometry; panel optimization.

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- 43 references

Full-text links
The therapeutic use of the zonulin inhibitor AT-1001 (Larazotide) for a variety of acute and chronic inflammatory diseases


Authors

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• PMID: 33397225
• DOI: 10.2174/0929867328666210104110053

Abstract

Background: The involvement of intercellular tight junctions and, in particular, the modulation of their competency by the zonulin pathway with a subsequent increase in epithelial and endothelial permeability, has been described in several chronic and acute inflammatory diseases. In this scenario, Larazotide, a zonulin antagonist, could be employed as a viable therapeutic strategy.

Objective: The present review aims to describe recent research and current observations about zonulin involvement in several diseases and the use of its inhibitor Larazotide for their treatment.

Methods: A systematic search was conducted on PubMed and Google Scholar, resulting in 209 publications obtained with the following search query: "Larazotide," "Larazotide acetate," "AT-1001," "FZI/0" and "INN-202." After
careful examination, some publications were removed from consideration because they were either not in English or were not directly related to Larazotide.

**Results:** The obtained publications were subdivided according to Larazotide's mechanism of action and different diseases: celiac disease, type 1 diabetes, other autoimmune diseases, inflammatory bowel disease, Kawasaki disease, respiratory (infective and/or non-infective) diseases, and other.

**Conclusions:** A substantial role of zonulin in many chronic and acute inflammatory diseases has been demonstrated in both in vivo and in vitro, indicating the possible efficacy of a Larazotide treatment. Moreover, new possible molecular targets for this molecule have also been demonstrated.

**Keywords:** AT-1001; Celiac disease; Chronic Inflammatory Disease; Diabetes.; FZI/0; INN-202; Intestinal permeability; Larazotide; Zonulin.

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**Full-text links**

[BenthamScience Full-Text Article](#)

150. [Foreign body type reaction causing differential diagnostic difficulty after appendectomy](#)


**Authors**

Tímea Seszták ¹, Attila Kálmán ¹, Áron Cseh ¹, Péter Krivácsy ¹, Tamás Micsik ², Gábor Rudas ³

**Affiliations**
Összefoglaló. Az appendectomia szövődményei a leggyakrabban a korai posztooperatív időszakban jelentkeznek. A műtét után évekkel megjelenő szövődmény ritka. Egy 11 éves kislányt vizsgáltunk 2 hete fennálló hasi panaszok miatt. Anamnézisében 8 évvel ezelőtt hagyományos módon elvégzett appendectomia szerepel. Az Ausztriában készült első hasi ultrahangvizsgálat eltérést nem talált. Az intézetünkben elvégzett képalkotó vizsgálatok - hasi ultrahang, MR-vizsgálat - ileocecalisan elhelyezkedő szolid terimét igazoltak, és felvetették a folyamat gyulladásos eredetét. A szerteágazó klinikai tünetek, a laboratóriumi és a képalkotó diagnosztikai eltérések kapcsán differenciáldiagnozis szempontból a gyulladásos belbetegség lehetősége is felmerült, és biztonsággal a tumoros folyamatot sem sikerült kizárni. A rosszabbodó status miatt műtét történt. Ennek során a colon ascendenszel összefüggő, makroszkóposan tumoros megjelenésű elváltozást távolítottak el. A szöveti vizsgálat malignitást nem igazolt, a folyamat idegen test okozta - varróanyag-granuloma - krónikus gyulladásos jellegét erősítette meg. A vizsgálatok kapcsán coeliakia is igazolódott. A hasi műtétek ritka szövődménye a Schloffer-tumor, melyet idegen test típusú - gyakran sebészi varróanyag-maradvány körüli - granulomatosus gyulladásos folyamat jellemzi. Az entitás ismerete differenciáldiagnozis szempontból fontos. Nehezítette a diagnózist az első hasi ultrahangvizsgálat negatív eredménye és az egyidejűleg manifesztálódó coeliakia. Orv Hetil. 2021; 162(3): 112-115. Summary. Generally, complications with appendectomy occur during the early postoperative stage and are quite rare years after the operation. In case of late manifestation of complications, the clinical signs are generally unspecific. We report a case of an 11-year-old girl - who underwent an appendectomy 8 years ago - with abdominal pain during the last 2 weeks. The first ultrasound examinations were carried out in Austria with normal results.
In our department, the ultrasonography and the MR examinations showed an inhomogeneous abdominal mass which was connected to the abdominal wall and with the suspicion of inflammation. Because of the diversified results of radiology imaging and laboratory test, inflammatory bowel disease and tumor were considered in the differential diagnosis. During the operation, a tumor-like lesion related to the ascending colon was found. The histopathological examination revealed a foreign body type suture granuloma with a central abscess. Malignancy was not found. The clinical investigation proved celiac disease, too. The Schloffer tumor is a rare complication after abdominal surgery. This is a foreign body type inflammatory granuloma mainly around a surgical thread. The knowledge of the entity is important in differential diagnostic aspect. The presence of celiac disease in combination with the negative result of the first ultrasound examination made the exact diagnosis more difficult. Orv Hetil. 2021; 162(3): 112-115.

**Keywords:** Schloffer tumor; Schloffer-tumor; foreign body type reaction; granuloma; idegen test típusú reakció; postoperative complication; posztoperatív szövődmény.

**Publication types**

- Case Reports

**MeSH terms**

- Appendectomy / adverse effects*
- Austria
- Child
- Female
- Foreign Bodies / diagnostic imaging*
- Foreign Bodies / surgery
- Humans
- Postoperative Complications
- Ultrasonography / methods*

**Full-text links**
The multiple faces of autoimmune/immune-mediated myocarditis in children: a biopsy-proven case series treated with immunosuppressive therapy


Authors

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• DOI: 10.1002/ehf2.13163

Free article

Abstract

The role of immunosuppressive therapy (IT) in paediatric autoimmune/immune-mediated myocarditis remains poorly defined. To explore its role, we present a series of three consecutive paediatric patients with biopsy-proven, virus negative, autoimmune/immune-mediated myocarditis, with distinct clinical and pathological features, who have been successfully treated with IT, a 14-year-old boy with Loeffler's fibroblastic
parietal endomyocarditis, a 6-year-old child with celiac disease with chronic active lymphocytic myocarditis, and a 13-year-old boy with long-standing heart failure and active lymphocytic myocarditis. Patients started IT and entered follow-up between July 2017 and September 2019; the first patient completed IT. IT was associated with a substantial and sustained recovery of cardiac function in our patients, regardless of their heterogeneous clinical and pathological features. Combination IT was well tolerated and enabled tapering and weaning off steroids.

**Keywords:** Children; Endomyocardial biopsy; Immunosuppressive therapy; Myocarditis.

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- 15 references

Publication types

- Case Reports

Full-text links

152. **Associations of TP53 codon 72 polymorphism with complications and comorbidities in patients with type 1 diabetes**


Authors

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DOI: 10.1007/s00109-020-02035-1

Abstract

Wild-type TP53 plays an important role in the regulation of immune response and systemic inflammation. In type 1 diabetes (T1D), TP53 pathways are upregulated and an increased susceptibility to apoptosis is observed. We hypothesize that TP53 codon 72 polymorphism could be associated with complications and comorbidities in patients with T1D. We have investigated the associations of the TP53 codon 72 polymorphism with the T1D complications and comorbidities (retinopathy, nephropathy, hypertension, dyslipidemia, autoimmune thyroiditis, and celiac disease) in 350 patients. The key results of our approach are as follows: (1) In diabetic subjects, the Pro/Pro genotype is associated with an increased risk of microvascular complications, dyslipidemia, and celiac disease; (2) the Arg/Arg variant is associated with a decreased risk of autoimmune thyroiditis and celiac disease; (3) the Pro allele is associated with an increased risk of dyslipidemia, autoimmune thyroiditis, and celiac disease. Although further studies are required, our results for the first time indicate that the TP53 codon 72 polymorphism could be considered a genetic marker to predict the increased susceptibility to some T1D complications and comorbidities. KEY MESSAGES: We analyzed the TP53 codon 72 polymorphism in patients with T1D. Pro/Pro genotype is associated with an increased risk of microvascular complications, dyslipidemia, and celiac disease. The Arg/Arg variant is associated with a decreased risk of autoimmune thyroiditis and celiac disease. The Pro allele is associated with an increased risk of dyslipidemia, autoimmune thyroiditis, and celiac disease.
**Keywords:** Diabetes complications; TP53 codon 72 polymorphism; Type 1 diabetes.

- **42 references**

153. **Heating Wheat Gluten Promotes the Formation of Amyloid-like Fibrils**


**Authors**

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- DOI: [10.1021/acsomega.0c03670](https://doi.org/10.1021/acsomega.0c03670)

**Abstract**

Amyloid fibrils (AFs) are highly ordered nanofibers composed of proteins rich in β-sheet structures. In this study, the impact of heating conditions relevant in food processing on AF formation of wheat gluten (WG) was investigated. Unheated and heated WG samples were treated with proteinase K and trypsin to solubilize the nonfibrillated protein, while protein fibrils were extracted with 0.05 M sodium phosphate buffer (pH 7.0) from the undissolved fraction obtained by the same enzymatic treatment. Conditions (i.e., heating at 78°C for 22 h) resembling those in slow cooking induced the formation of straight fibrils (ca. 700 nm in length), whereas boiling WG for at least 15 min resulted
in longer straight fibrils (ca. 1-2 μm in length). The latter showed the typical green birefringence of AFs when stained with Congo red. Their X-ray fiber diffraction patterns showed the typical reflection (4.7 Å) for inter-β-strand spacing. These results combined with those of Fourier transform infrared and thioflavin T spectroscopy measurements validated the identification of β-rich amyloid-like fibrils (ALFs) in dispersions of boiled WG. Boiling for at least 15 min converted approximately 0.1-0.5% of WG proteins into ALFs, suggesting that they can be present in heat-treated WG-containing food products and that food-relevant heating conditions have the potential to induce protein fibrillation.

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Conflict of interest statement

The authors declare no competing financial interest.

- 38 references
- 7 figures

Letter: no-biopsy pathway for diagnosing adult coeliac disease


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PMID: 33368504
DOI: 10.1111/apt.16133

No abstract available
Prevalence of HLA DQ 2, 8 in children with celiac disease


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PMID: 33523049
DOI: 10.3233/HAB-200437

Abstract

Objective: Celiac disease is a chronic disease that affect small bowel by making its villi become atrophic. Various environmental and genetic factors have been identify as inducing factors for celiac disease. Most of the patients has one of the HLA DQ forms. Although the prevalence of these genes are
variable in different areas of the world, we do not have a comprehensive information about this issue in our region. Thus the aim of present study is to investigate the prevalence of HLA DQ typing of patients who visited Emam Reza Gastroenterology clinic of Shiraz (IRAN).

**Methods:** In this case-control study all under 18 years old children who were diagnosed with celiac disease and have visited Emam Reza gastroenterology clinic were investigated. The diagnosis of celiac disease was made by history, physical exam, serologic test, and histopathology of duodenal biopsy. Blood sample was taken and HLA typing performed using PCR method at Motahari clinic cytology laboratory. Also those people who neither them self nor their first degree relatives were not case of celiac disease and underwent HLA typing for other reason were identified as control group. The statistical analysis was done using SPSS 18 software. The p value < 0.05 was identified as statistically significant.

**Results:** A total of 139 patients with celiac disease and 146 normal children were studied. The mean age of the patient with celiac disease were 9.1 years old with standard deviation of 3.4 years old. 64% of the celiac patients were girls and 36% were boys. While this proportion was 54.4% for boy and 48.6% for girls in control group. The most common HLA in celiac patients group were HLA DQ2 and 8 but the most common ones in control group were HLA DQ 8 and 5. Failure to Thrive were the most common signs of the celiac patients with a prevalence of 60 children. Total IgA titer were normal in 98.6% of the patients and TTG IgA titer were positive in 93.5% of the patients. The most common co-existing disease with the celiac disease were diabetes with a prevalence of 30 children (66.7%).

**Conclusion:** present study reveals that the prevalence of the HLA DQ2 and 8 among patients with celiac disease is 72.6% and 53% in our normal population.

**Keywords:** Celiac disease; HLA; Iran.
Refractory Environmental Enteric Dysfunction


Authors

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Abstract

**Background & aims:** Environmental enteric dysfunction (EED) limits the Sustainable Development Goals of improved childhood growth and survival. We applied mucosal genomics to advance our understanding of EED.

**Methods:** The Study of Environmental Enteropathy and Malnutrition (SEEM) followed 416 children from birth to 24 months in a rural district in Pakistan. Biomarkers were measured at 9 months and tested for association with growth at 24 months. The duodenal methylome and transcriptome was determined in 52 undernourished SEEM participants and 42 North American controls and celiac disease patients.

**Results:** After accounting for growth at study entry, circulating IGF-1 and ferritin predicted linear growth, whereas leptin correlated with future weight gain. The EED transcriptome exhibited suppression of antioxidant, detoxification, and lipid metabolism genes, and induction of anti-microbial response, interferon, and lymphocyte activation genes. Relative to celiac disease, suppression of antioxidant and detoxification genes and induction of anti-microbial response genes were EED-specific. At the epigenetic level, EED showed hyper-methylation of epithelial metabolism and barrier function genes, and hypo-methylation of immune response and cell proliferation genes. Duodenal co-expression modules showed association between
lymphocyte proliferation and epithelial metabolic genes and histologic severity, fecal energy loss, and wasting (weight-for-length/height Z<-2.0). Leptin was associated with expression of epithelial carbohydrate metabolism and stem cell renewal genes. Immune response genes were attenuated by giardia colonization.

**Conclusions:** Children with reduced circulating IGF-1 are more likely to experience stunting. Leptin and a gene signature for lymphocyte activation and dysregulated lipid metabolism are implicated in wasting, suggesting new approaches for EED refractory to nutritional intervention.

**Keywords:** DNA methylation; RNA sequencing; anthropometrics; intestine.

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157. [Capsule endoscopy: evidence-based indications in 2020]


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DOI: 10.1701/3525.35123

**Abstract**

Videocapsule endoscopy is, by far, one of the most important milestones in the technological development of endoscopy in the last twenty years. The introduction and spread of videocapsule endoscopy in clinical practice revolutionized the management of small bowel's diseases, allowing a high-
quality, extensive examination of its whole mucosal surface. Because of its technical features, videocapsule endoscopy does not allow any direct therapeutic interventions but, compared to other techniques, it is minimally invasive, radiation-free and has an excellent safety profile. The most common indication for videocapsule endoscopy is suspected small bowel bleeding, although other conditions (such as coeliac disease, hereditary polyposis syndromes and, above all, Crohn's disease) may benefit from its use, as highlighted by several studies in recent years. The aim of this paper is to provide a wide overview on indications, limitations and future perspectives of videocapsule endoscopy: by 2020, this technique has become a valuable and irreplaceable tool for the study of the small bowel, changing the patients' management in many clinical scenarios.

Publication types

- English Abstract

Full-text links

158. Digestibility, lactation performance, plasma metabolites, ruminal fermentation, and bacterial communities in Holstein cows fed a fermented corn gluten-wheat bran mixture as a substitute for soybean meal


Authors

X Jiang, H J Xu, G M Ma, Y K Sun, Y Li, Y G Zhang
Abstract

The purpose of this research was to investigate the effects of replacing soybean meal (SBM) with a fermented corn gluten-wheat bran mixture (FCWM) on nutrient digestibility, lactation performance, plasma metabolites, ruminal fermentation, and bacterial communities in Holstein cows. Nine healthy multiparous (parity = 3) Holstein cows with similar body weights (624 ± 14.4 kg), days in milk (112 ± 4.2), and milk yields (31.8 ± 1.73 kg; all mean ± standard deviation) were used in a replicated 3 × 3 Latin square design with 3 periods of 28 d. Cows were fed 1 of 3 dietary treatments in which FCWM replaced SBM as follows: basal diet with no replacement (0FCWM); 50% replacement of SBM with FCWM (50%FCWM); and 100% replacement of SBM with FCWM (100%FCWM). The diets were formulated to be isocaloric and isonitrogenous. The results showed that the total-tract digestibility of dry matter and crude protein increased linearly with increased dietary FCWM, and we found a trend for increased total-tract neutral detergent fiber and potentially digestible NDF digestibility. Milk yield tended to increase in a linear manner as more FCWM was consumed, and energy-corrected milk production was significantly increased with FCWM supplementation as a result of increased milk protein and lactose yields. Plasma glucose and IgG concentrations increased linearly with increasing FCWM supplementation, but plasma malondialdehyde concentration decreased linearly. Concentrations of total volatile fatty acids and propionate showed a linear increase with increasing FCWM supplementation, leading to a linear decrease in pH. The relative abundance of ruminal Prevotellaceae, Veillonellaceae, and Prevotella
1 increased linearly with increasing FCWM supplementation, and the relative abundance of ruminal Succinivibrionaceae and Muribaculaceae decreased linearly. The relative abundance of fecal Ruminococcaceae, Prevotellaceae, and Ruminococcaceae UCG-005 increased linearly with increasing FCWM supplementation, but the relative abundance of fecal Peptostreptococcaceae decreased linearly. Overall, the replacement of SBM with FCWM altered the composition of the ruminal bacterial community and improved nutrient digestibility, lactation performance, and ruminal fermentation in cows, providing a data reference for the use of FCWM in dairy production.

**Keywords:** dairy cow; fermented corn gluten-wheat bran mixture; performance.

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**Full-text links**

159. *Incidentally Detected Celiac Disease with Splenomegaly on* $^{18}$F FDG PET/CT: A Potential Lymphoma Mimic


**Authors**

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Celiac disease is an immune-mediated disorder triggered by hypersensitivity to gluten occurring in genetically susceptible individuals. A high-index of suspicion is needed for diagnosis as patients can be asymptomatic or present with atypical symptoms or extra-intestinal manifestations. Typical $^{18}$F-Fluorodeoxyglucose (FDG) Positron Emission Tomography (PET)/Computed Tomography (CT) gastrointestinal manifestations of celiac disease include increased multifocal or diffuse jejunal and ileal uptake; focal duodenal uptake is less common. Splenomegaly with increased splenic FDG uptake is also uncommon in celiac disease in the absence of portal hypertension; small-sized spleen and functional hyposplenism are more typical. We report a case of celiac disease diagnosed after PET/CT showed FDG uptake in the duodenum and enlarged spleen. Follow-up after gluten-free diet showed complete metabolic resolution and regression of splenomegaly. The combination of focal bowel and splenic uptake is unusual in celiac disease and may be mistaken for a lymphoproliferative disorder. Awareness of this entity may avoid misdiagnosis and guide appropriate management.

**Keywords:** $^{18}$F-FDG PET/CT; Celiac disease; Incidental bowel uptake; Lymphoma; Splenomegaly.

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Atypical Presentation of Celiac Disease: Recurrent Acute Small Bowel Obstruction


Authors

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- DOI: 10.1177/1179547620986152

Free PMC article

Abstract

Context: Intussusception is the most common cause of small bowel obstruction in children under 4 years of age. Intussusception is not a widely recognized complication of celiac disease.

Case report: We present a clinical case of a 23-month-old boy with a 1-month history of watery diarrhea complicated by 2 episodes of intestinal obstruction, both had required surgery. He presented with acute and severe abdominal distention with bilious vomiting, and an appearance of intussusception on abdominal ultrasound. Upon further investigation, the diarrhea was found to be malabsorptive. The diagnosis of celiac disease was confirmed by the presence of specific serum autoantibodies (IgA Tissue transglutaminase and endomysium Antibodies >200 UI/ml with normal serum IgA level). He started a gluten-free diet and his symptoms were almost completely resolved.

Conclusion: Recurrent intussusception may be associated with celiac disease, so celiac serology is recommended in children with recurrent intussusceptions. However, intestinal tuberculosis and lymphoma associated with enteropathy
should be considered in the differential diagnosis. Intussusception in celiac disease is usually transient and should be managed expectantly rather than early surgical reduction.

**Keywords:** Recurrent small bowel obstruction; celiac disease; intussusception.

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**Conflict of interest statement**

Declaration of conflicting interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

- 7 references
- 3 figures

**Publication types**

- Case Reports

**Full-text links**

161. **Primary amenorrhoea as a manifestation of coeliac disease**


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Abstract

Coeliac disease is a systemic autoimmune disorder that has a wide range of clinical manifestations that include abdominal pain, diarrhoea, obstipation, weight loss, short stature and even primary amenorrhoea. It can be asymptomatic, which makes it an underdiagnosed disease. We present a case report of a 15-year-old girl who was referred to a paediatric consultation due to primary amenorrhoea. A detailed clinical history revealed poor weight gain. Physical examination showed that secondary sexual characteristics were present and there was a low body mass index. Ultrasonography images and laboratory tests revealed a normal urogenital system and an adequate gonadal function. Coeliac disease antibodies were positive and the diagnosis was confirmed through duodenal biopsy. The symptom resolved with a gluten-free diet. An approach to primary amenorrhoea should always include investigation of a systemic illness as it is a rare but treatable diagnosis.

Keywords: coeliac disease; endocrinology; paediatrics.

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Conflict of interest statement

Competing interests: None declared.

Full-text links

162. Assessment of Tumor Response in Mice with Ovarian Peritoneal Carcinomatosis
using Doppler Ultrasound of the Superior Mesenteric Artery and Celiac Trunk


Authors

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PMID: 33358050
DOI: 10.1016/j.ultrasmedbio.2020.11.030

Abstract

The goal of the work described here was to assess the performance of Doppler ultrasound (US) of the superior mesenteric artery (SMA) and celiac trunk (CT) in the evaluation of tumor response in female mice with ovarian peritoneal carcinomatosis treated either with bevacizumab or with carboplatin. Compared with untreated mice, carboplatin-treated mice had a lower weight (23.3 ± 2.0 vs. 27.9 ± 2.9 g, p < 0.001), peritoneal carcinomatosis index (PCI, 11 ± 3 vs. 28 ± 6, p < 0.001), Ki67-positive staining surfaces (p < 0.001), vascular density (p < 0.001), mean blood flow velocity (mBFVel) in the SMA (7.0 ± 1.4
vs. 10.9 ± 1.8 cm/s, p < 0.001) and CT (8.0 ± 1.8 vs. 14.3 ± 4.6 cm/s, p < 0.001) and no ascites. Weight and mBFVel were similar in bevacizumab-treated and untreated mice. The mBFVels in the SMA and CT correlated with the PCI used as an estimation of the tumor burden, R = 0.70 (p < 0.0001) and R = 0.65 (p < 0.0001), respectively. Doppler US allows non-invasive assessment of the effects of anticancer therapy in ovarian peritoneal carcinomatosis-induced mice.

**Keywords:** Celiac trunk; Doppler ultrasound; Ovarian peritoneal carcinomatosis; Peritoneal carcinomatosis; Superior mesenteric artery; Tumor response.

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**Full-text links**

[Diagnosis of celiac disease in a nonagenarian patient]

[Article in Spanish]

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No abstract available

Publication types

- Case Reports

Full-text links

164. **Influence of Ultra-Processed Foods Consumption on Redox Status and Inflammatory Signaling in Young Celiac Patients**


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Abstract

The current study was designed to assess the influence of consumption of ultra-processed (UPF) on oxidative/antioxidant balance and evoked inflammatory signaling in young patients with celiac disease (CD). The study included 85 children. The celiac group (n = 53) included children with CD with a long (>18 months, n = 17) or recent (<18 months, n = 36) adherence to a gluten-free diet (GFD). The control group (n = 32) included healthy children with a significantly higher consumption of UPF compared to the control group, both expressed as kcal/day (p = 0.043) and as percentage of daily energy intake (p = 0.023). Among children with CD, the group with the lowest consumption of UPF (below the 50% of daily energy intake) had a greater Mediterranean diet (MD) adherence and higher moderate physical activity levels. In addition, CD children with the lowest consumption of UPF had healthier redox (lower soluble superoxide dismutase-1 and 15-F2t-isoprostanes) and inflammatory profiles (lower macrophage inflammatory protein-1α) compared to the group with the highest consumption of UPF (all, p < 0.05) regardless of the time on a GFD. These findings highlight the importance of a correct monitoring of the GFD. An unbalanced GFD with high consumption of UPF and an unhealthy pattern with less physical activity and worse adherence to MD results in a worse inflammatory profile, which could act as a parallel pathway that could have important consequences on the pathophysiology of the disease.
Keywords: celiac disease; children; gluten-free diet; inflammatory signaling; oxidative stress; ultra-processed foods.

Conflict of interest statement

The authors declare no conflict of interest.

- 57 references
- 1 figure

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- PP2017-PIP14/University of Granada
- FPU17/03715/Spanish Ministry of Education, Culture and Sports

Full-text links

165. Gluten-free rice & bean biscuit: characterization of a new food product


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- PMID: 33521353
- PMCID: PMC7820923
Abstract

As the market does not offer a portable and long-lasting product combining rice and beans in a single preparation, this study intends to characterize a new and alternative gluten-free biscuit, based on the most classic Brazilian staple food: rice and beans. For that, six formulations were designed to test using those ingredients as raw flours and cooked grains. One of them, formulated with wheat flour served as control. After baking, biscuits were submitted to instrumental, physicochemical, and consumer's sensory tests. Tests showed that when cooked beans substituted dried beans flour, the notes of acceptance increased and nutritional profile improved significantly (p < 0.05), which demonstrated to be an innovative use to bakery ingredients. One of the formulations even superseded the acceptance of the control formulation. At least two of the rice and beans formulations presented physicochemical profiles close to the control, with good protein (±10 g/100g) and mineral (±5 g/100g) contents, also being a food source of fibers (±8.2 g/100g), meaning they can bring potential benefits to people on gluten-restricted diets and celiac consumers, as well as to Brazilians who could consume rice and beans, now in a new versatile way.

**Keywords:** Celiac consumers; Legumes; Sensory evaluation; Snack crackers; Vegan consumers.

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No abstract available

Erratum for

Distance measurements and origin levels of the coeliac trunk, superior mesenteric artery, and inferior mesenteric artery by multiple-detector computed tomography angiography.

Ekingen A, Hatipoğlu ES, Hamidi C.


PMID: 32915395

Publication types

• Published Erratum

Full-text links

SpringerLink
Impact of the protein composition on the structure and viscoelasticity of polymer-like gluten gels

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PMID: 33494081
DOI: 10.1088/1361-648X/abdf91

Abstract

We investigate the structure of gluten polymer-like gels in a binary mixture of water/ethanol, 50/50 v/v, a good solvent for gluten proteins. Gluten comprises two main families of proteins, monomeric gliadins and polymer glutenins. In the semi-dilute regime, scattering experiments highlight two classes of behavior, akin to standard polymer solution and polymer gel, depending on the protein composition. We demonstrate that these two
classes are encoded in the structural features of the proteins in very dilute solution, and are correlated with the presence of proteins assemblies of typical size tens of nanometers. The assemblies only exist when the protein mixture is sufficiently enriched in glutenins. They are found directly associated to the presence in the gel of domains enriched in non-exchangeable H-bonds and of size comparable to that of the protein assemblies. The domains are probed in neutron scattering experiments thanks to their unique contrast. We show that the sample visco-elasticity is also directly correlated to the quantity of domains enriched in H-bonds, showing the key role of H-bonds in ruling the visco-elasticity of polymer gluten gels.

Keywords: gel; polymer; structure; viscoelasticity.

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Full-text links

168. Concentrate supplementation with dried corn gluten feed improves the fatty acid profile of longissimus thoracis muscle from steers offered grass silage


Authors

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Abstract

**Background:** Concentrate supplementation of a grass silage-based ration is a typical practice employed for indoor winter finishing of beef cattle in many temperate countries. Plant by-products, such as dried corn gluten feed (CGF), can be utilised to replace conventional feedstuffs in a concentrate supplement to enhance the sustainability of ruminant production systems and to improve meat quality. This study examined the chemical composition, fatty acid profile, oxidative stability and sensory attributes of beef (longissimus thoracis muscle) from steers offered grass silage and concentrate supplements containing varying levels (0%, 25%, 50%, 75%) of CGF substituted for barley/soybean meal.

**Results:** Feeding 50%CGF decreased the protein content and increased intramuscular fat compared to 25%CGF. Total phenol content and iron-reducing antioxidant power followed the order: 0%CGF > 50%CGF and 25%CGF > 0%CGF = 50%CGF, respectively. Compared to 0%CGF, 25%CGF and 75%CGF decreased C14:0 and increased C22:2n-6, C20:5n-3 and total n-3 polyunsaturated fatty acids whereas 75%CGF increased conjugated linoleic acids and C18:3n-3. Diet did not affect the oxidative stability and sensory attributes of beef patties.

**Conclusion:** The inclusion of up to 75%CGF in a supplementary concentrate for steers increased the proportion of health-promoting unsaturated fatty acids without negatively influencing the shelf-life and eating quality of longissimus thoracis muscle. This article is protected by copyright. All rights reserved.

**Keywords:** antioxidant potential; beef; corn gluten feed; eating quality; fatty acids.

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Immune Checkpoint Inhibitor-Induced Upper Gastrointestinal Tract Inflammation Shows Morphologic Similarities to, but Is Immunologically Distinct From, Helicobacter pylori Gastritis and Celiac Disease


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DOI: 10.5858/arpa.2019-0700-OA

Free article

Abstract

Context.—: Immune checkpoint inhibitor (CPI) therapies are associated with multi-organ immune-related adverse events. Although colonic mucosal changes have been described, inflammatory changes incited by CPIs in the upper gastrointestinal tract have not been well characterized.

Objective.—: To investigate morphologic and immunologic changes incited by CPI therapy in the upper gastrointestinal tract.
Design.—: We compared the morphology and immune cell phenotype of gastric and duodenal biopsies from patients treated with anti-cytotoxic T-lymphocyte associated protein 4 (CTLA-4) or anti-programmed death receptor-1/programmed death ligand-1 (PD-1/PD-L1) antibodies with biopsies from patients with Helicobacter pylori gastritis, patients with celiac disease, and normal controls.

Results.—: Gastric biopsies from patients on CPIs showed chronic gastritis mimicking H pylori gastritis. However, CPI gastritis demonstrated greater numbers of CD8+ intraepithelial lymphocytes, less lamina propria inflammation, fewer plasma cells and CD20+ B cells, fewer lymphoid aggregates, and reduced CD4:CD8 ratio in both the lamina propria and the epithelial layer. There were no differences between anti-CTLA-4 and anti-PD-1/PD-L1 gastritis, except for more lymphoid aggregates in anti-PD-1/PD-L1 gastritis. Duodenal biopsies from patients on CPIs revealed chronic duodenitis with villous blunting, mimicking celiac disease. Compared with celiac disease, CPI duodenitis demonstrated higher prevalence of neutrophilic infiltrates and erosions, increased lamina propria CD3 and CD8 T cells, and reduced CD4:CD8 ratio. Upper gastrointestinal biopsies were more inflamed than concomitant colonic biopsies in the majority of patients.

Conclusions.—: The morphologic and immunophenotypic distinctions between CPI-associated upper gastrointestinal injuries and common infectious and autoimmune diseases may provide useful discriminators when clinicians are confronted with gastric and duodenal inflammatory changes in patients receiving CPI therapy.

Conflict of interest statement

The authors have no relevant financial interest in the products or companies described in this article.

Full-text links

170. Introduction and feeding practices of solid food in preterm infants born in Salzburg!
Abstract

Background: It is shown that meeting the increased nutritional demand of preterm infants from birth is not only important for survival but essentially contributes to the infants` overall development and long-term health. While there are established guidelines for weaning term infants, evidence regarding preterm infants is scarce and less precise. The aim of this study was to identify the current practices on introducing solids to preterm infants amongst caregivers in Salzburg and determine potential reasons for early weaning.

Methods: Altogether 68 infants born between 24 0/7 and 36 6/7 weeks were recruited and detailed structured interviews with the caregivers were conducted at 17 weeks corrected age. Weight, height and head circumference were collected.

Results: 52% of the study group received solids before the recommended 17 weeks corrected age. For this group the mean age being 13.77 ± 1.11 weeks corrected age. Premature introduction of solids significantly correlates with
exclusively and early formula-feeding. 34% were weaned due to recommendation by their paediatrician. 23% of the preterm infants even received solids before 12 weeks corrected age, putting them at risks for developing obesity, celiac disease and diabetes.

Conclusions: This study shows the necessity for clear guidelines regarding the introduction of complementary feeding in preterm infants as well as the importance of their implementation. Caregivers should receive information on this topic early enough and they should fully understand the difference between chronological and corrected age.

Keywords: Complementary feeding; Preterm infants; Solids; Weaning.

Conflict of interest statement

The authors declare that they have no competing interests.

- 19 references
- 4 figures

Full-text links

171. Considerations for future research on celiac disease in children with functional constipation Key Words: self-report; diagnosis


Authors

Samar Al-Shamaa, Alexander Tan

- PMID: 33440206
The fashionable gluten-free diet-wear with caution


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DOI: 10.1093/ajcn/nqaa371

No abstract available

Full-text links
Gynæcologic Symptoms in Patients with Non-coeliac Wheat Sensitivity


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No abstract available

11 references

Publication types

Editorial

Full-text links

SpringerLink
Gluten-induced RNA methylation changes regulate intestinal inflammation via allele-specific XPO1 translation in epithelial cells


Authors

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Abstract

Objectives: Coeliac disease (CD) is a complex autoimmune disorder that develops in genetically susceptible individuals. Dietary gluten triggers an immune response for which the only available treatment so far is a strict, lifelong gluten free diet. Human leucocyte antigen (HLA) genes and several non-HLA regions have been associated with the genetic susceptibility to CD, but their role in the pathogenesis of the disease is still essentially unknown, making it complicated to develop much needed non-dietary treatments. Here, we describe the functional involvement of a CD-associated single-nucleotide polymorphism (SNP) located in the 5'UTR of XPO1 in the inflammatory environment characteristic of the coeliac intestinal epithelium.

Design: The function of the CD-associated SNP was investigated using an intestinal cell line heterozygous for the SNP, N6-methyladenosine (m6A)-related knock-out and HLA-DQ2 mice, and human samples from patients with CD.

Results: Individuals harbouring the risk allele had higher m6A methylation in the 5'UTR of XPO1 RNA, rendering greater XPO1 protein amounts that led to downstream nuclear factor kappa B (NFkB) activity and subsequent inflammation. Furthermore, gluten exposure increased overall m6A methylation in humans as well as in in vitro and in vivo models.

Conclusion: We identify a novel m6A-XPO1-NFkB pathway that is activated in CD patients. The findings will prompt the development of new therapeutic approaches directed at m6A proteins and XPO1, a target under evaluation for the treatment of intestinal disorders.
Keywords: celiac disease; gluten; inflammation; intestinal gene regulation; methylation.

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Conflict of interest statement

Competing interests: None declared.

Successful coping with SARS-CoV-2 infection of adult celiac patients assessed by telemedicine


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No abstract available
Conflict of interest statement

Declaration of Competing Interest All authors declare no conflict of interests.

- 10 references

Publication types

- Letter

Full-text links

176. Survival impact of distal pancreatectomy with en bloc celiac axis resection combined with neoadjuvant chemotherapy for borderline resectable or locally advanced pancreatic body carcinoma


Authors

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Abstract

**Background:** The survival benefit associated with distal pancreatectomy with en bloc celiac axis resection (DP-CAR) for patients with borderline resectable or locally advanced pancreatic body carcinoma is controversial. The aim of this study was to evaluate the impact of DP-CAR following neoadjuvant chemotherapy on survival in patients with borderline resectable or locally advanced pancreatic body carcinoma.

**Methods:** Medical records of patients with pancreatic ductal adenocarcinoma who underwent distal pancreatectomy (DP, n = 102) and DP-CAR following neoadjuvant chemotherapy (n = 32) between 2008 and 2019 were analyzed retrospectively. Short- and long-term outcomes were compared between the two groups.

**Results:** All patients who underwent DP-CAR had tumor contact with the celiac axis. Of these, 30 patients underwent preoperative embolization of the common hepatic artery. The pretreatment tumor size of patients who underwent DP-CAR was larger (P < 0.001), and rates of blood transfusion (P = 0.003) and postoperative complications (P = 0.016) were higher in patients who underwent DP-CAR compared with patients who underwent DP. The 5-year survival rate of patients who underwent DP and DP-CAR were 50.6% and 41.1%, respectively (median survival time, 65.9 vs 37.0 months). For all 134 patients, pretreatment serum CA19-9 levels (P < 0.001), adjuvant chemotherapy (P < 0.001), and lymph node status (P = 0.035) were independent prognostic factors of overall survival by multivariate analysis.

**Conclusions:** DP-CAR following neoadjuvant chemotherapy for patients with borderline resectable or locally advanced pancreatic body carcinoma may bring the same survival impact as DP, despite increased morbidity.

**Keywords:** Distal pancreatectomy; Distal pancreatectomy with en bloc celiac axis resection; Neoadjuvant chemotherapy; Pancreatic body or tail carcinoma.
Conflict of interest statement

Declaration of competing interest The authors declare that they have no conflicts of interest.

Application of a personal Santini technique in the resolution of a complex celiac trunk aneurysm - endovascular treatment


Authors

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Free article

Abstract

Aim Vascular pathologies have been already explored for the most of their aspects. It is a group of pathologies with unclear ethology and with an evolution in time not easy to forecast. Treatment guidelines are conflicting. The aim of this study was to describe cases in their most practical and technical aspect, especially in complicated conditions. Methods This was a descriptive case report of a patient with a hepatic artery aneurysm complicated by a dissection leading up to the splenic artery, and how the team
had invented a planned treatment for the patient using a minimally invasive approach. The experience was born with the intention of showing how the endovascular approach is at least as safe as the traditional one despite the complexity of our case. Results The procedure was completed without any complications. After a stay in long day surgery, the patient returned home. Conclusion Using a minimally invasive technique allows to reduce the patient's post-operative suffering and the economic burden on the health system.

**Keywords:** aneurism; dissection; hepatic artery; splenic artery.

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**Full-text links**

[178. Haplotype analysis of the X chromosome in patients with Turner syndrome in order to verify the possible effect of imprinting on selected symptoms](https://example.com)


**Authors**

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Abstract

**Aims:** Turner syndrome is the only chromosome monosomy that is postnatally compatible with life. The reported incidence of TS is 1 in 2500 liveborn girls. The phenotype of these girls is highly variable, with cardiac abnormalities being life-threatening defects. The aim of the study was to reveal the possible influence of the parental origin of the X chromosome in these patients on a selected phenotype that is associated with Turner syndrome. Selected symptoms and parameters were: a bicuspid aortic valve, aortic coarctation, lymphoedema, pterygium colli, coeliac disease, thyroiditis, otitis media, diabetes mellitus 2, renal abnormalities, spontaneous puberty, and IVF.

**Methods:** The X chromosome haplotype was determined for a group of 45,X patients verified by native FISH. A molecular diagnostic method based on the detection of different lengths of X chromosome-linked STR markers using the Argus X-12 QS kit was used to determine the X haplotype.

**Results:** Our results, analysed by Fisher’s exact (factorial) test, suggest independence between the maternal/paternal origin of the inherited X
chromosome and the presence of the anomalies that were studied (P=1 to P=0.34).

**Conclusion:** In the group of 45,X patients, who were precisely selected by means of the native FISH method, no correlation was demonstrated with the parental origin of the X chromosome and the observed symptom.

179. **Transcirculation microballoon-assisted coil embolization for dorsal pancreatic artery aneurysm due to celiac artery dissection: A case report**


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**Free PMC article**

**Abstract**

The dorsal pancreatic artery is a part of peripancreatic arcade connecting celiac artery to transpancreatic artery. A dorsal pancreatic artery aneurysm derived from dissection of celiac artery is a rare pathology, and it sometimes requires ingenious strategy in an endovascular surgery. Hereby, we report a
case of a patient who underwent coil embolization for dorsal pancreatic artery aneurysm due to celiac artery dissection by applying transcirculation approach of a balloon catheter through the peripancreatic arcade, which was successfully achieved.

Keywords: Transcirculation approach; celiac artery dissection; dorsal pancreatic artery aneurysm; microballoon-assisted coil embolization.

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Conflict of interest statement

Declaration of conflicting interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

- 10 references
- 4 figures

Publication types

- Case Reports

Full-text links

180. The quality of gluten-free bread made of brown rice flour prepared by low temperature impact mill


Authors

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Abstract

Our previous work reported that the brown rice flour prepared by low temperature impact mill possessed excellent physicochemical properties. The performance of brown rice flour in making gluten-free bread was further investigated. It was found that the starch crystal structure was destroyed and the damaged starch content increased as the particle size of brown rice flour decreased. The interaction between the starch and water in the model dough and the matrix structures among the endosperm masses were enhanced as the particle size decreased, making the gluten-free dough more viscoelastic. However, dough made with finer flour was too sticky, which limited the expansion of dough. Gluten-free bread prepared with medium-sized brown rice flour had favorable quality characterized by large specific volume, low hardness, numerous and homogeneous gas cells.

Keywords: Brown rice; Dough; Gluten-free bread; Low temperature impact mill; Particle size.

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Vital gluten is often used in baking to supplement weak wheat flours and improve their baking quality. Even with the same recipe, variable final bread volumes are common, because the functionality differs between vital gluten samples also from the same manufacturer. To understand why, the protein composition of ten vital gluten samples was investigated as well as their performance in a microbaking test depending on the water content in the dough. The gluten content and composition as well the content of free thiols and disulfide bonds of the samples were similar and not related to the specific bread volumes obtained using two dough systems, one based on a baking mixture and one based on a weak wheat flour. Variations of water addition
showed that an optimal specific volume of 1.74-2.38 mL/g (baking mixture) and 4.25-5.49 mL/g (weak wheat flour) was reached for each vital gluten sample depending on its specific water absorption capacity.

**Keywords:** baking quality; bread volume; gliadins; glutenins; vital gluten; water absorption; wheat.

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- AiF 19710 N/Allianz Industrie Forschung

**Full-text links**

182. [Response to the Letter to the Editor on Celiac Disease in Children with Functional Constipation. A School Based Multicity Study](https://jpediatrics.org/article/S0022-3476(21)00014-7/fulltext)


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- PMID: 33444641
Hybrid QconCAT-Based Targeted Absolute and Data-Independent Acquisition-Based Label-Free Quantification Enables In-Depth Proteomic Characterization of Wheat Amylase/Trypsin Inhibitor Extracts


Authors

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³ State Plant Breeding Institute, University of Hohenheim, Fruwirthstr. 21, 70599 Stuttgart, Germany.
Wheat amylase/trypsin inhibitors (ATIs) have gained significant relevance as inducers of intestinal and extra-intestinal inflammation. In this study, we present a novel hybrid data-independent acquisition (DIA) liquid chromatography-mass spectrometry (LC-MS) approach, combining QconCAT technology with short microflow LC gradients and DIA and apply the method toward the quantitative proteome analysis of ATI extracts. The presented method is fast, robust, and reproducible and provides precise QconCAT-based absolute quantification of major ATI proteins while simultaneously quantifying the proteome by label-free quantification (LFQ). We analyzed extracts of 60 varieties of common wheat grown in replication and evaluated the reproducibility and precision of the workflow for the quantification of ATIs. Applying the method to analyze different wheat species (i.e., common wheat, spelt, durum wheat, emmer, and einkorn) and comparing the results to published data, we validated inter-laboratory and cross-methodology reproducibility of ATI quantification, which is essential in the context of large-scale breeding projects. Additionally, we applied our workflow to assess environmental effects on ATI expression, analyzing ATI content and proteome of same varieties grown at different locations. Finally, we explored the potential of combining QconCAT-based absolute quantification with DIA-based LFQ proteome analysis for the generation of new hypotheses or assay development.

**Keywords:** QconCAT; *Triticum aestivum*; alpha-amylase/trypsin inhibitor; bottom-up proteomics; celiac disease; data-independent acquisition; flour; label-free quantification; non-celiac wheat sensitivity; wheat.
Association between Elevated TGA-IgA Titers and Older Age at Diagnosis with Absence of HBV Seroconversion in Celiac Children


Authors

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DOI: 10.3390/vaccines9020101

Abstract

Patients with celiac disease can have a low rate of protective hepatitis B (HBV) antibody titers after vaccination. We aimed to evaluate the HBV seroconversion in celiac disease (CD) children at the time of diagnosis as well as to identify the presence of possible predictive factors. Celiac disease children were prospectively enrolled and tested for antibodies against the S protein of HBV (HBsAg) at time of diagnosis between January 2009 and February 2020. Based on the serologic response to the vaccine, "responders" and "non-responders" were identified. Statistical analysis has been performed through R statistical software (3.5.1 version, R core Team) Of 96 CD children evaluated, 41.7% (n = 40) showed non-protective or absent antibody titers against HBV. Elevated IgA-antibodies against transglutaminase 2 (TGA-IgA) values and older age at diagnosis were associated with an absent
seroconversion to HBV vaccine, while presenting symptoms were not significant. An elevated prevalence of absent seroconversion to HBV vaccine exists in this cohort of CD patients at the time of disease diagnosis. Elevated TGA-IgA titers and older age at diagnosis seem to negatively predict seroconversion. Further studies are needed to identify the real profile of "non-responders", aiming to organize surveillance and eventual revaccination strategy.

Keywords: HBV seroconversion; anti-transglutaminase titers; celiac disease; children.

185. Statement of the Prolamin Working Group on the Determination of Gluten in Fermented Foods Containing Partially Hydrolyzed Gluten


Authors

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Conflict of interest statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Full-text links

Gliadin, through the Activation of Innate Immunity, Triggers IncRNA NEAT1
Expression in Celiac Disease Duodenal Mucosa


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Abstract

Celiac disease (CD) is an autoimmune enteropathy arising in genetically predisposed subjects exposed to gluten, which activates both innate and adaptive immunity. Although the pathogenesis is common to all patients, the clinical spectrum is quite variable, and differences could be explained by gene expression variations. Among the factors able to affect gene expression, there are lncRNAs. We evaluated the expression profile of 87 lncRNAs in CD vs. healthy control (HC) intestinal biopsies by RT-qPCR array. Nuclear enriched abundant transcript 1 (NEAT1) and taurine upregulated gene 1 (TUG1) were detected as downregulated in CD patients at diagnosis, but their expression increased in biopsies of patients on a gluten-free diet (GFD) exposed to gluten. The increase in NEAT1 expression after gluten exposure was mediated by IL-15.
and STAT3 activation and binding to the NEAT1 promoter, as demonstrated by gel shift assay. NEAT1 is localized in the nucleus and can regulate gene expression by sequestering transcription factors, and it has been implicated in immune regulation and control of cell proliferation. The demonstration of its regulation by gluten thus also supports the role of lncRNAs in CD and prompts further research on these RNAs as gene expression regulators.

**Keywords:** NEAT1; TUG1; celiac disease; innate immunity; long non-coding RNAs.

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187. **Common hepatic artery arises from superior mesenteric artery: bipode celiac trunk**


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• 1 figure