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TREATMENT OF PEDIATRIC CELIAC DISEASE: MONITORING GROWTH AND DEVELOPMENT

TRATAMENTO DA DOENÇA CELÍACA PEDIÁTRICA: MONITORAMENTO DO CRESCIMENTO E DESENVOLVIMENTO

TRATAMIENTO DE LA ENFERMEDAD CELÍACA PEDIÁTRICA: MONITOREO DEL CRECIMIENTO Y DESARROLLO

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ABSTRACT

Celiac disease is a chronic inflammatory autoimmune disorder triggered by gluten ingestion in genetically predisposed individuals, with a significant impact on the pediatric population, particularly on growth and development. Gluten-induced enteropathy in childhood damages the small intestinal mucosa, causing malabsorption of essential nutrients and ultimately leading to growth failure, delayed puberty, and nutritional deficiencies. This study aims to discuss the therapeutic management of pediatric celiac disease, with an emphasis on monitoring growth and development as central components of treatment. It is a narrative literature review conducted through a search in the PubMed database using standardized descriptors and included publications from the last five years addressing celiac disease, childhood, diagnosis, and treatment. These findings reveal that the clinical presentation of celiac disease during childhood is heterogeneous, including gastrointestinal and extra-intestinal manifestations, which can delay diagnosis and affect growth. Early recognition, based on serological evidence and, when appropriate, duodenal biopsy, is crucial for the effective implementation of a gluten-free diet, the only treatment currently proven effective. Strict adherence to the diet is also a key factor leading to clinical, nutritional recovery and catch-up growth, particularly in the initial months after diagnosis. However, the challenges associated with dietary adherence

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further emphasize the need for multidisciplinary follow-up. Systematic monitoring of growth, pubertal development, nutritional status, and serology is an essential aspect of the clinical management of pediatric celiac disease and is crucial for a favorable prognosis and the prevention of short- and long-term complications.

Keywords: Celiac Disease. Pediatrics. Gluten-Free Diet. Growth and Development. Diagnosis.

RESUMO

A doença celíaca é um distúrbio auto-imune inflamatório crônico desencadeado pela ingestão de glúten em indivíduos geneticamente predispostos, com impacto significativo na população pediátrica, especialmente no crescimento e desenvolvimento. A enteropatia induzida pelo glúten na infância danifica a mucosa do intestino delgado, causando má absorção de nutrientes essenciais e, em última análise, falha no crescimento, puberdade atrasada e deficiências nutricionais. Este estudo visa discutir o manejo terapêutico da doença celíaca pediátrica, com ênfase no monitoramento do crescimento e desenvolvimento como componentes centrais do tratamento. Trata-se de uma revisão narrativa da literatura realizada por meio de uma busca na base de dados PubMed utilizando descritores padronizados e incluiu publicações dos últimos cinco anos abordando doença celíaca, infância, diagnóstico e tratamento. Esses achados revelam que a apresentação clínica da doença celíaca durante a infância é heterogênea, incluindo manifestações gastrointestinais e extra intestinais, que podem atrasar o diagnóstico e afetar o crescimento. O reconhecimento precoce, baseado em evidências sorológicas e, quando apropriado, biópsia duodenal, é crucial para a implementação eficaz de uma dieta sem glúten, o único tratamento com eficácia comprovada atualmente. A adesão estrita à dieta também é um fator chave que leva à recuperação clínica, nutricional e ao crescimento compensatório, particularmente nos meses iniciais após o diagnóstico. No entanto, os desafios associados à adesão dietética enfatizam ainda mais a necessidade de acompanhamento multidisciplinar. O monitoramento sistemático do crescimento, desenvolvimento puberal, estado nutricional e sorologia é um aspecto essencial do manejo clínico da doença celíaca pediátrica e é crucial para um prognóstico favorável e para a prevenção de complicações a curto e longo prazo.

Palavras-chave: Doença Celíaca. Pediatria. Dieta Isenta de Glúten. Crescimento e Desenvolvimento. Diagnóstico.

RESUMEN

La enfermedad celíaca es un trastorno autoinmune inflamatorio crónico desencadenado por la ingestión de gluten en individuos genéticamente predispuestos, con un impacto significativo en la población pediátrica, particularmente en el crecimiento y desarrollo. La enteropatía inducida por gluten en la infancia daña la mucosa del intestino delgado, causando mala absorción de nutrientes esenciales y, en última instancia, fracaso en el crecimiento, pubertad retrasada y deficiencias nutricionales. Este estudio tiene como objetivo discutir el manejo terapéutico de la enfermedad celíaca pediátrica, con énfasis en el monitoreo del crecimiento y desarrollo como componentes centrales del tratamiento. Se trata de una revisión narrativa de la literatura realizada mediante una búsqueda en la base de datos PubMed utilizando descriptores estandarizados e incluyó publicaciones de los últimos cinco años que abordaron enfermedad celíaca, infancia, diagnóstico y tratamiento. Estos hallazgos revelan que la presentación clínica de la enfermedad celíaca durante la infancia es heterogénea, incluyendo manifestaciones

gastrointestinales y extraintestinales, que pueden retrasar el diagnóstico y afectar el crecimiento. El reconocimiento temprano, basado en evidencia serológica y, cuando corresponde, biopsia duodenal, es crucial para la implementación efectiva de una dieta sin gluten, el único tratamiento actualmente con eficacia comprobada. La adhesión estricta a la dieta también es un factor clave que conduce a la recuperación clínica, nutricional y al crecimiento compensatorio, particularmente en los meses iniciales tras el diagnóstico. Sin embargo, los desafíos asociados con la adherencia dietética enfatizan aún más la necesidad de un seguimiento multidisciplinario. El monitoreo sistemático del crecimiento, desarrollo puberal, estado nutricional y serología es un aspecto esencial del manejo clínico de la enfermedad celíaca pediátrica y es crucial para un pronóstico favorable y la prevención de complicaciones a corto y largo plazo.

Palabras clave: Enfermedad Celíaca. Pediatría. Dieta Sin Gluten. Crecimiento y Desarrollo. Diagnóstico.

1 INTRODUCTION

Celiac disease (CD) is a chronic inflammatory condition of an autoimmune nature triggered by exposure to gluten in genetically predisposed individuals, characterized by an immune-mediated enteropathy associated with the presence of specific autoantibodies and the HLA-DQ2 and HLA-DQ8 haplotypes, which results in inflammation of the mucosa of the small intestine, villous atrophy and consequent impairment in the absorption of essential nutrients. In the pediatric population, CD can be manifested by classic gastrointestinal symptoms, such as diarrhea and signs of malabsorption, or by paucissymptomatic conditions and atypical presentations, which contributes to the underdiagnosis of the disease (Daley; Haseeb, 2025; Quiet; Verdelho Machado, 2021). With an estimated global prevalence of around 1%, the incidence of CD in children has shown significant growth in recent decades, a phenomenon attributed both to increased clinical awareness and to the improvement of diagnostic tools, although it is recognized that a significant portion of cases still remain unidentified (Sahin, 2021; Elwenspoek et al., 2022; Quiet; Verdelho Machado, 2021).

Treatment of celiac disease in the pediatric community should not stop at exclusion, but should include careful observation of growth and development as part of clinical management. In the pediatric population, linear growth and weight change are relevant assessment indicators for therapeutic use and can provide insights into the recovery trajectory of intestinal mucosa over time and the success of a gluten-free diet (Sahin, 2021; Daley; Haseeb, 2025). In this sense, continuous monitoring of anthropometric parameters becomes a key element for the follow-up of celiac children, and more particularly for the period of the first years after diagnosis. Monitoring children's developmental process, including bone growth and pubertal developments, is especially relevant in the management of pediatric celiac disease. The fact that, even when serological normalization occurs, changes may persist after the intervention without any type of sustained and systematic monitoring demonstrates the need for a precise clinical protocol for longitudinal observation of these patients (Calado; Machado, 2022; Pinto-Sanchez et al., 2021). Thus, growth and development surveillance should not be considered only as a complementary or supplementary phase of treatment, but as an integral and vital phase of clinical management in pediatric celiac disease.

Unlike the classic presentation in adults, CD in childhood requires strict vigilance over somatic development. The classic symptoms are: chronic diarrhea, and

developmental failure, while non-specific manifestations may also be present including abdominal pain, anemia, chronic fatigue, which can delay diagnosis. GABRIELLE (SAHIN, 2021; DALEY; HASEEB, 2025). Chronic malabsorption, in this sense, can result in growth failure, pubertal delay, and nutritional deficiencies that, if not corrected early, can lead to permanent sequelae (Laurikka et al., 2022; Sahin, 2021). Early diagnosis, based on serological tests and, when necessary, duodenal biopsies, is the first step towards the implementation of the gluten-free diet (GFD), currently the only effective therapeutic modality (Calado and Machado, 2022; Pinto-Sanchez et al., 2021). Continuous monitoring of growth and ensuring adherence to GID are key to ensuring that the child reaches his or her genetic developmental potential (Silvester et al., 2021). This study aims to discuss the treatment protocols and follow-up strategies for celiac children.

2 METHODOLOGY

This study is a narrative literature review, structured with the aim of consolidating and critically analyzing contemporary guidelines for the management of celiac disease in childhood. The documentary search was carried out in the PubMed database (National Library of Medicine), using the selected descriptors: "Celiac Disease", "Child", "Treatment" and "Diagnosis". These terms were articulated through the use of Boolean operators (AND and OR), respecting the standardized terminology of Medical Subject Headings (MeSH) in order to increase the sensitivity of the search and ensure the retrieval of studies relevant to the proposed scope. Prospecting was limited to review articles and original studies published in the last five years, prioritizing full-access texts written in English. The selection followed strict inclusion criteria, focusing on studies that directly addressed the repercussions of the condition on pediatric growth, clinical manifestations of pediatric celiac disease, diagnostic strategies, therapeutic management, adherence to the gluten-free diet, and longitudinal follow-up protocols and monitoring protocols. Brief communications, duplicate studies, and productions with low scientific rigor or without a direct relationship with the thematic scope were excluded. Data analysis was processed in a qualitative and descriptive manner, organizing the evidence into thematic categories for the final draft.

In addition, the selected articles were read in full, with systematic extraction of relevant information by two independent reviewers, in order to minimize selection and interpretation trends. The divergences were determined by consensus. The data

collected included aspects related to epidemiology, clinical manifestations, diagnostic criteria, repercussions on child growth and development, as well as therapeutic strategies, challenges in adhering to the gluten-free diet, and recommendations for clinical and nutritional monitoring. The organization of the findings was done through narrative synthesis, allowing the critical integration of the available evidence and the construction of an extensive approach to the management of celiac disease in the pediatric population.

3 RESULTS AND DISCUSSION

3.1 CLINICAL MANIFESTATIONS AND IMPACT ON GROWTH

Celiac disease in the pediatric population has a broad clinical spectrum, varying according to age and time of exposure to gluten. Although classically associated with gastrointestinal symptoms, there is currently an increase in oligo- or extra-intestinal forms, which can delay diagnosis and amplify the nutritional and growth impact (Sahin, 2021; Daley; Haseeb, 2025).

In infants and younger children, chronic diarrhea, abdominal distension, abdominal pain, and anorexia predominate, and in undiagnosed cases they may progress to malnutrition and failure to thrive. In older children, digestive symptoms tend to be milder or nonspecific, including recurrent abdominal pain, nausea, constipation, and weight loss, making initial clinical suspicion difficult. In recent decades, there has been a transition from the predominance of gastrointestinal manifestations to extraintestinal presentations, a phenomenon attributed to the greater availability of diagnostic tests and screening in risk groups (Sahin, 2021).

Among the most frequent extraintestinal manifestations are iron deficiency anemia, osteopenia, pubertal delay, liver alterations, and chronic fatigue, mainly due to nutrient malabsorption and the systemic inflammatory process associated with gluten-induced enteropathy (Sahin, 2021; Daley; Haseeb, 2025).

Growth impairment is one of the most relevant repercussions of celiac disease in childhood, and short stature may represent the main or only clinical manifestation. Villite atrophy reduces the absorption of macro and micronutrients essential for growth, resulting in low weight gain, reduced muscle mass, and delayed pubertal development (Sahin, 2021; Daley; Haseeb, 2025).

Iron deficiency anemia, often observed at diagnosis, contributes to fatigue, poorer school performance, and additional impairment of growth. In addition, pubertal delay is described in a relevant portion of untreated patients, and is usually reversed after initiation of appropriate treatment (Sahin, 2021).

The early introduction of the gluten-free diet promotes significant clinical and nutritional recovery, with growth acceleration especially in the first months after diagnosis and reaching the target height, in most cases, in subsequent years. The absence of adequate recovery should prompt investigation of inadequate adherence to the diet or other causes associated with growth deficit (Sahin, 2021).

In addition to the manifestations of celiac disease, the risk of developing another autoimmune disease is 3 to 10 times higher in patients who already have the condition compared to the population without clinical manifestation. The most common associated disease is type 1 diabetes mellitus, since they share common genetic factors and pathogenicity mechanisms. HLA-DQ2 AND HLA-DQ8 are alleles of the HLA class ii system, molecules that facilitate the presentation of self-antigens to CD4+ T lymphocytes, which implies an aberrant immune response against the tissues themselves, so that as 58-85% of patients diagnosed with type 1 DM with celiac disease are asymptomatic, early diagnosis of celiac disease is of paramount importance, since it plays a crucial role in the prevention of possible future complications such as: osteopenia, infertility and malignancies. (Sahin, Y. et al., 2021)

Thus, the literature shows that the delay in diagnosis has an important impact on child growth and development, and the investigation of celiac disease should be considered in children with short stature, iron deficiency anemia, or growth failure without a defined cause, in order to prevent nutritional repercussions and favor adequate development (Sahin, 2021; Daley; Haseeb, 2025).

3.2 EPIDEMIOLOGY AND SYSTEMIC CONSEQUENCES

The global prevalence of celiac disease is estimated at 1%, with variations between detection by antibodies (1.4%) and confirmation by biopsy (0.7%). Geographically, the rates are highest in Europe and Oceania (0.8%) and lowest in South America (0.4%). From a demographic perspective, the condition is 1.5 times more common in women and strikes children twice as often as adults (Sahin, 2021).

Such epidemiological disparity is influenced by a combination of genetic and environmental factors. Among the main external triggers are the pattern of wheat consumption and the age of introduction of gluten into the diet (Sahin, 2021).

Late diagnosis of celiac disease in adults can lead to serious complications that affect several systems of the body. When strict treatment with a gluten-free diet is instituted early, many of these consequences can be avoided or minimized (Laurikka et al., 2022).

Some of the main systemic impacts are present in the Skeletal System, with reduced absorption of vitamin D and calcium, resulting in reduced bone density, causing osteopenia and osteoporosis, thus increasing the risk of fractures. Impacting cardiovascular and neurological health, in order to occur inflammation that affects the heart and neurological damage that manifests itself as peripheral neuropathy and ataxias. Therefore, the most serious risk of late diagnosis is the development of T-cell lymphoma in addition to tumors in the gastrointestinal tract (Laurikka et al., 2022).

3.3 DIAGNOSTIC STRATEGIES IN PEDIATRICS

Gastroenterology societies around the world have not reached a consensus on a single protocol, with specific and well-defined criteria, for the diagnostic investigation of the population. This difficulty in standardizing the diagnosis is due to the multiple forms of manifestation of celiac disease, both in the gastrointestinal and extraintestinal spheres, in addition to the existence of asymptomatic patients. Thus, specific high-risk groups were defined in which screening for the disease should be considered, and there has been, so far, no proof of benefits in screening asymptomatic individuals (Pinto-Sanchez et al., 2021).

Diagnostic screening is based on three main pillars: serological tests, genetic testing, and duodenal histology. First-line serological tests involve the measurement of anti-tissue transglutaminase IgA antibodies (tTG-IgA), which is the most indicated test due to its high sensitivity and specificity. Similarly, the anti-endomysium IgA antibody test (EMA-IgA) is an alternative with high accuracy, but it has a higher cost and greater technical complexity compared to the previous one. In addition, total IgA dosage is important to rule out selective IgA deficiency, a condition that can coexist and predispose to the development of celiac disease (Calado and Machado, 2022; Sahin, 2021).

Diagnosis in childhood has evolved significantly with the ESPGHAN guidelines, which allow, in specific situations of high titers of anti-tissue transglutaminase IgA antibodies (greater than 10 times the upper limit of normal), diagnostic confirmation without the need for intestinal biopsy (Sahin, 2021; Calado and Machado, 2022). This protocol aims to reduce the burden of invasive procedures in children, although biopsy remains the gold standard for cases with low or inconclusive serological titers (Elwenspoek et al., 2022). In these cases, reasons that may falsify the results should also be considered, such as the use of immunosuppressive medications, patients under two years of age, and the adoption of a current diet with low gluten intake (Sahin, 2021).

It is worth noting that the presence of symptoms is not mandatory for the diagnosis of celiac disease. Protocols recommend that in the presence of signs, symptoms, laboratory evidence of malabsorption, unexplained fatigue, and recurrent oral ulcers, diagnostic tests should be performed. In the case of patients with irritable bowel SD (risk for celiac disease increased by 4 times compared to the general population) and with a positive history of disease in first-degree relatives, screening and longitudinal follow-up are chosen (Calado, 2021).

As already reported, the early diagnosis of the pediatric population is of paramount importance for the control and reduction of complications in their development and growth. In order to protocol possible predictors and indicators of celiac disease, the National Institute for Health and Care-Research established possible predictors for celiac disease in children, which among them stood out with the highest estimation coefficients: patients with type 1 diabetes, Turner syndrome, IgA immunodeficiency and with a positive family history for celiac disease in first-degree relatives. In the serious analysis, the marker that demonstrated the greatest effectiveness in the pediatric group in 133 studies, also carried out by this institution, was Antiendomysial IgA, with a sensitivity similar to Total Iga, but with greater specificity. Performing the two together showed no significant change (Elwensoek et al., 2022). The Antiendomysium IgA marker is protocoled as an excellent confirmatory test, especially when Total IgA levels are >2x below the upper limit of normal (Calado, 2021). A final analysis was performed for the accuracy of genetic tests such as HLA-BQ2 or BQ8 in 4 studies, which demonstrated to have a high negative predictive value, being a good test to rule out the existence of the disease (Elwenspoek et al., 2022).

3.4 THERAPEUTIC MANAGEMENT AND THE ROLE OF GID

The mainstay of treatment is a gluten-free diet for life. Complete exclusion of wheat, barley, and rye leads to rapid clinical remission and, in most cases, recovery of intestinal villous architecture within months, reduction of chronic inflammation, recovery of growth, and weight gain One of the most notable phenomena after initiation of GID is "*catch-up growth*," where the child quickly regains the height and weight percentiles lost during the period of disease activity (Sahin, 2021).

However, adherence to the DIG imposes significant psychosocial and economic challenges. Silvester et al. (2021) highlight that the diet is costly, socially isolating, and extremely difficult to maintain due to frequent cross-contamination. In children, social pressure at school and at social events increases the risk of dietary transgressions, which requires multidisciplinary follow-up involving pediatricians, nutritionists, and psychologists (Silvester et al., 2021; Pinto-Sanchez et al., 2021).

Thus, the gluten-free diet should be understood as a therapeutic intervention that requires continuous monitoring and individualized strategies throughout childhood, respecting physiological stages of growth and development. Maintaining adherence, especially in social and school contexts, requires systematic guidance and professional support, in order to reduce therapeutic failures and ensure the effectiveness of treatment over time (Silvester et al., 2021; Pinto-Sanchez et al., 2021). Thus, the management of pediatric celiac disease presupposes the integration of dietary prescription, continuous health education, and regular clinical follow-up, essential elements for the consolidation of the benefits of treatment.

3.5 MONITORING AND PROGNOSIS

Monitoring growth and development is a central component of the clinical follow-up and prognosis of pediatric celiac disease. Periodic assessment of weight, height, and body mass index, with records on growth curves appropriate for age and sex, allows early identification of failures in nutritional recovery, possible inadequate adherence to the gluten-free diet, or the presence of associated comorbidities (Sahin, 2021; Quiet; Machado, 2022).

In addition, monitoring pubertal development and assessing nutritional status, including the dosage of micronutrients such as iron, vitamin D, and calcium, are essential to prevent complications such as pubertal delay and reduced bone mineral density

(Laurikka et al., 2022). Serological monitoring, especially through anti-Iga tissue transglutaminase antibodies, helps in the assessment of treatment response and contributes to ensuring adequate growth and development throughout childhood (Sahin, 2021; Pinto-Sanchez et al., 2021).

Longitudinal follow-up of children with celiac disease should be continuous and structured, focusing on clinical, nutritional, and serological assessment. Periodic monitoring of serological markers is recommended to verify adherence to the gluten-free diet and the progressive normalization of antibody levels, a parameter that correlates with the recovery of the intestinal mucosa (Sahin, 2021). At the same time, it is essential to systematically record the growth curves of the World Health Organization (WHO) in order to ensure adequate weight gain and physical development compatible with age. The persistence of symptoms or the absence of height recovery after 6 to 12 months of a gluten-free diet should motivate investigation of inadvertent gluten intake, low adherence to treatment, or the presence of associated comorbidities, such as autoimmune diseases — particularly thyroid disorders and type 1 diabetes mellitus — which are more prevalent in celiac patients. Regular follow-up is also essential to prevent long-term complications and ensure adequate clinical and laboratory recovery (Calado; Verdelho Machado, 2021; Laurikka et al., 2022).

Evidence indicates that, in children, the response to the gluten-free diet tends to be faster and more effective when compared to the adult population, with serological normalization usually observed in the first six months and complete histological recovery in up to 95% of cases after one year of treatment. This process is directly associated with improved linear growth, adequate weight gain, and correction of nutritional deficiencies, which are fundamental factors for a favorable prognosis during child development (Calado and Machado, 2022).

The anti-tissue transglutaminase IgA antibody (tTG-IgA) is considered the main laboratory marker for follow-up, with a mean time of approximately one year after the start of treatment until normalization of serum levels. However, in the pediatric population, evidence of a favorable clinical evolution is observed between two and four weeks after the start of the diet, preceding the improvement of laboratory markers (Sahin, 2021).

Another essential component of monitoring concerns the periodic assessment of nutritional status and serum levels of micronutrients, especially iron, vitamin D, calcium, and zinc, which are often reduced at the time of diagnosis due to intestinal malabsorption.

Even after the strict adoption of the gluten-free diet, some children may have a slow recovery of these parameters, which reinforces the importance of continuous laboratory monitoring and specific supplementation when indicated. This surveillance contributes to preventing complications such as persistent anemia, low bone mineral density, and delayed skeletal mineralization (conditions that can compromise linear growth and pubertal development). Thus, the integration between anthropometric assessment, serial laboratory tests, and regular clinical follow-up is a fundamental axis to ensure adequate evolution and reduce the risk of residual nutritional deficits throughout treatment.

The prognosis of pediatric celiac disease is largely favorable when there is strict adherence to the gluten-free diet and continuous follow-up. Lack of proper monitoring or inadvertent ingestion of gluten can result in persistent gut inflammation, nutritional deficits, and impaired growth and development. Thus, follow-up should include periodic clinical evaluation, serological monitoring through anti-tissue transglutaminase antibodies, nutritional assessment, and screening for comorbidities. Multidisciplinary follow-up is essential to optimize clinical outcomes and reduce the risk of long-term complications, ensuring a favorable prognosis throughout the life cycle (Calado and Machado, 2022; Daley; Haseeb, 2025).

4 CONCLUSION

Celiac Disease (CD) is a systemic autoimmune disorder of a chronic nature that significantly affects the pediatric population. Its heterogeneous clinical presentation, which encompasses gastrointestinal and extraintestinal manifestations, contributes to underdiagnosis. Early recognition is essential, and clinical suspicion is raised in the presence of symptoms such as chronic diarrhea, failure to thrive, unexplained weight loss, and pubertal delay. The diagnosis is established by means of serological tests of high sensitivity and specificity, with emphasis on the anti-tissue transglutaminase IgA antibody (anti-tTG IgA), and complemented by duodenal biopsy in indicated cases.

The effective treatment and the only proven therapeutic modality is strict and lifelong adherence to the Gluten-Free Diet (GFD). GID promotes the clinical, nutritional and histological recovery of the intestinal mucosa, culminating in the phenomenon of *catch-up growth*, essential for the child to reach its genetic developmental potential.

Therefore, continuous monitoring of growth, pubertal development, nutritional status, and serological markers (anti-tTG IgA) is a central and indispensable component

of clinical management. Longitudinal surveillance and multidisciplinary follow-up are crucial to ensure sustained adherence to the diet, prevent short- and long-term complications (such as osteopenia and the increased risk of other autoimmune diseases, notably type 1 diabetes mellitus), and ensure a favorable prognosis of CD throughout the pediatric life cycle.

REFERENCES

Calado, J., & Machado, M. V. (2022). Celiac disease revisited. GE - Portuguese Journal of Gastroenterology, 29(2), 111-124.

Daley, S. F., & Haseeb, M. (2025). Celiac disease. In StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing.

Elwenspoek, M. M. C., et al. (2022). Defining the optimum strategy for identifying adults and children with coeliac disease: Systematic review and economic modelling. Health Technology Assessment, 26(44), 1-310.

Laurikka, P., et al. (2022). Review article: Systemic consequences of coeliac disease. Alimentary Pharmacology & Therapeutics, 55(10), 1247-1262.

Pinto-Sanchez, M. I., et al. (2021). Society for the Study of Celiac Disease position statement on gaps and opportunities in coeliac disease. Nature Reviews Gastroenterology & Hepatology, 18(12), 869-884.

Sahin, Y. (2021). Celiac disease in children: A review of the literature. World Journal of Clinical Pediatrics, 10(4), 53-71.

Silvester, J. A., et al. (2021). Celiac disease: Fallacies and facts. The American Journal of Gastroenterology, 116(6), 1148-1155.