

Celiac disease: Prevalence, management, novel therapie.

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Introduction

Significant advancements continue to reshape the landscape of celiac disease management and diagnosis. These developments include novel non-invasive strategies tailored for specific patient populations and ongoing debates surrounding gluten challenge protocols and long-term follow-up care, all aimed at optimizing patient outcomes and diagnostic accuracy[1].

Understanding the core mechanisms of celiac disease is fundamental to effective intervention. This involves recognizing the complex interplay between a patient's genetic predisposition, environmental factors such as dietary gluten, and the resultant dysregulation of the immune system. These elements together drive the disease's manifestation[2].

Adherence to a strict gluten-free diet presents numerous, often underestimated, challenges for individuals with celiac disease. Patients frequently encounter social, psychological, and practical barriers, which necessitate targeted strategies to improve dietary compliance and, consequently, enhance overall patient health and well-being[3].

Beyond celiac disease, the topic of non-celiac gluten or wheat sensitivity demands distinct consideration. It offers updated perspectives on its unique clinical presentation, presents significant diagnostic challenges, and requires evolving management approaches that are separate from those applied to celiac disease, reflecting its different underlying mechanisms[4].

Long-term complications associated with celiac disease are substantial and diverse, emphasizing the need for vigilant management. These issues range from nutritional deficiencies and osteoporosis to more severe conditions like refractory celiac disease and an elevated risk of certain malignancies. Early and accurate diagnosis coupled with strict gluten-free diet adherence are crucial for prevention[5].

Research is actively pursuing promising new therapeutic avenues for celiac disease, extending beyond the current standard of a strict gluten-free diet. These approaches include innovative enzyme therapies, advanced gluten detoxification methods, modulators target-

ing tight junctions, and various immunomodulatory treatments, all designed to enhance patient quality of life and effectively manage refractory cases[6].

The genetic underpinnings of celiac disease susceptibility are notably intricate. A strong association exists with specific Human Leukocyte Antigen (HLA) genes, particularly HLA-DQ2 and HLA-DQ8. Further research also explores the role of non-HLA genes, which contribute significantly to the disease's polygenic nature and its diverse clinical presentations across individuals[7].

A comprehensive global view reveals a notable increase in celiac disease prevalence across various populations worldwide. This rising trend, systematically analyzed through reviews and meta-analyses, highlights the substantial and growing public health burden that celiac disease imposes on healthcare systems and affected communities[8].

Celiac disease in pediatric patients presents unique considerations and challenges. This includes specialized diagnostic approaches, the critical importance of early intervention, and the complexities involved in managing a gluten-free diet in children and adolescents to ensure their proper growth, development, and overall health outcomes[9].

The impact of celiac disease and adherence to a gluten-free diet on a patient's quality of life is a significant concern. Current evidence points to persistent challenges such as the burden of dietary restrictions, social limitations, and psychological distress that can persist even with clinical improvement, underscoring the holistic impact of the condition[10].

Conclusion

Celiac disease management and diagnosis are advancing, incorporating non-invasive strategies and refining approaches to gluten challenges and follow-up care for various patient groups. The disease's pathogenesis is rooted in a complex interplay of genetic predisposition, notably HLA-DQ2 and HLA-DQ8 genes, environmental triggers like gluten, and subsequent immune system dysregulation. A global review indicates a consistent rise in celiac disease

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prevalence, highlighting its significant public health burden worldwide. Adherence to a strict gluten-free diet remains the primary treatment, yet it presents substantial social, psychological, and practical barriers impacting patient outcomes. Furthermore, non-celiac gluten/wheat sensitivity is recognized as a distinct condition with unique diagnostic challenges and management strategies separate from celiac disease. Long-term complications, including nutritional deficiencies, osteoporosis, refractory celiac disease, and increased malignancy risk, emphasize the critical importance of early diagnosis and unwavering gluten-free diet adherence. Pediatric celiac disease requires specialized diagnostic and intervention strategies to ensure proper growth and development. Promising novel therapeutic approaches, such as enzyme therapy, gluten detoxification, tight junction modulators, and immunomodulatory treatments, are under investigation to enhance patient quality of life and manage refractory cases. Despite clinical improvements, quality of life often remains impacted by dietary burden, social limitations, and psychological distress.

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