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THE IMPACT OF VITAMIN D DEFICIENCY ON THE CLINICAL COURSE AND SEVERITY OF ULCERATIVE COLITIS IN CHILDREN

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Abstract. Ulcerative colitis is a chronic inflammatory bowel disease that increasingly affects the pediatric population and is often associated with a more aggressive clinical course than in adults. In recent years, vitamin D deficiency has been recognized as a potential modifier of disease activity and severity in inflammatory bowel diseases. This article analyzes the role of vitamin D deficiency in the clinical course and severity of ulcerative colitis in children. Particular attention is given to the association between serum vitamin D levels, disease activity, frequency of relapses, and risk of complications. A review of current scientific evidence suggests that vitamin D deficiency is associated with increased disease severity, reduced remission duration, and poorer clinical outcomes. These findings support the importance of monitoring and correcting vitamin D deficiency as part of comprehensive management strategies in pediatric ulcerative colitis.

Keywords: pediatric ulcerative colitis, vitamin D deficiency, disease severity, clinical course, inflammatory bowel disease.

Ulcerative colitis (UC) is a chronic relapsing inflammatory disease of the colon characterized by continuous mucosal inflammation, most commonly involving the rectum and extending proximally in a variable pattern. Pediatric-onset ulcerative colitis accounts for a significant proportion of inflammatory bowel disease cases and is frequently associated with extensive colonic involvement, rapid disease progression, and a higher risk of growth impairment and extraintestinal manifestations.

The etiology of ulcerative colitis is multifactorial, involving genetic susceptibility, immune dysregulation, environmental factors, and alterations in the intestinal microbiota. Among environmental and nutritional factors, vitamin D has attracted increasing attention due to its immunomodulatory properties and its role in maintaining intestinal barrier integrity. Vitamin D deficiency is highly prevalent among children with ulcerative colitis and has been hypothesized to influence disease activity and severity. Understanding the impact of vitamin D deficiency on the clinical course of pediatric ulcerative colitis is essential for improving disease management and long-term outcomes.

This article is based on a narrative review of peer-reviewed clinical studies, observational research, meta-analyses, and systematic reviews published in international medical journals. Studies focusing on pediatric patients with ulcerative colitis and evaluating serum vitamin D levels in relation to disease activity, severity indices, relapse rates, and clinical outcomes were included. Emphasis was placed on research investigating the association between vitamin D deficiency and markers of disease severity, such as clinical activity scores, inflammatory biomarkers, and need for advanced medical therapy.

Multiple studies have demonstrated a high prevalence of vitamin D deficiency among children with ulcerative colitis. Reduced dietary intake, malabsorption, limited sunlight exposure, and chronic intestinal inflammation contribute to low serum vitamin D levels in this patient population. Several authors report that vitamin D deficiency is more common in children with active disease compared to those in remission, suggesting a close relationship between disease activity and vitamin D status.

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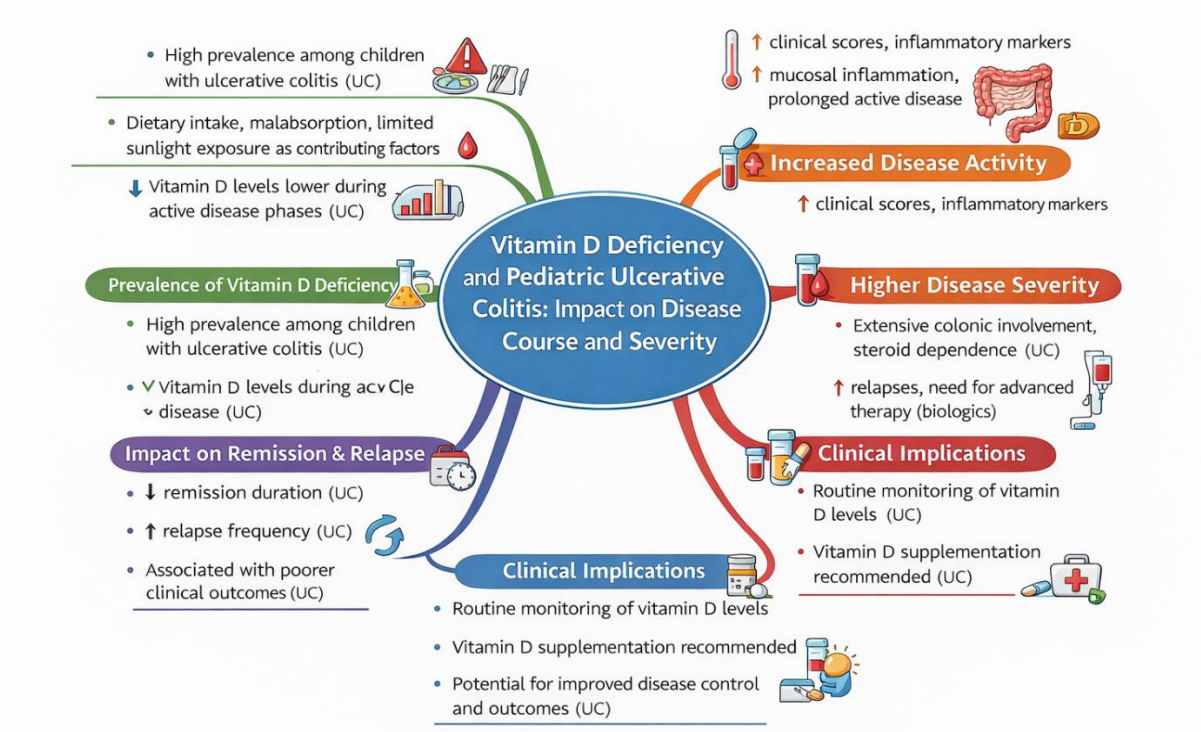

Clinical evidence indicates that low serum vitamin D levels are associated with increased disease activity in pediatric ulcerative colitis. Children with vitamin D deficiency tend to exhibit higher clinical activity scores, more severe gastrointestinal symptoms, and elevated inflammatory markers. Vitamin D deficiency has been linked to increased mucosal inflammation, which may exacerbate disease flares and prolong active disease phases.

Vitamin D deficiency has been associated with more severe forms of ulcerative colitis in children, including extensive colonic involvement and higher rates of corticosteroid dependence. Several studies suggest that children with low vitamin D levels are more likely to experience frequent relapses and require escalation of therapy, including immunomodulators or biologic agents. Furthermore, vitamin D deficiency may contribute to impaired mucosal healing, increasing the risk of complications and hospitalization.

Evidence from longitudinal studies indicates that adequate vitamin D levels are associated with longer remission periods and reduced relapse frequency in pediatric ulcerative colitis. Vitamin D deficiency, in contrast, is linked to shorter remission duration and earlier disease recurrence. These findings suggest that vitamin D status may serve as a prognostic indicator of disease course in children with ulcerative colitis.

The association between vitamin D deficiency and adverse clinical outcomes highlights the importance of routine monitoring of vitamin D levels in children with ulcerative colitis. Several authors advocate for vitamin D supplementation as an adjunctive strategy to standard medical therapy, although optimal dosing and long-term benefits require further investigation. Correcting vitamin D deficiency may contribute to improved disease control, reduced severity, and enhanced quality of life in pediatric patients.

Vitamin D deficiency plays a significant role in influencing the clinical course and severity of ulcerative colitis in children. Accumulating evidence suggests that low vitamin D levels are associated with increased disease activity, more severe clinical manifestations, higher relapse rates, and poorer overall outcomes. Incorporating vitamin D assessment and correction into the routine management of pediatric ulcerative colitis may offer a valuable approach to improving disease prognosis. Future prospective and interventional studies are needed to clarify the therapeutic potential of vitamin D supplementation and to establish evidence-based clinical guidelines.

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