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Perspective

Exploring the Link Between Food Insecurity, Chronic Eye Diseases, and Systemic Conditions

Neha Kapoor*

Department of Vision Studies, Atlantic University, Mumbai, India

DESCRIPTION

Food insecurity has been increasingly recognized as a potential contributor to various health challenges, including chronic diseases. While the broader effects of inadequate access to nutritious food have been well-documented in the context of general physical and mental health, its association with eye health remains under-explored. Visual impairment has been hypothesized as one of the consequences of food insecurity, but the connection between poor nutrition and specific ocular conditions remains unclear. This research aims to examine whether a relationship exists between food insecurity and chronic eye conditions such as cataracts, diabetic retinopathy (DR), age-related macular degeneration (AMD), and glaucoma.

Recent epidemiological research has started to probe into these links. These eye conditions represent some of the leading causes of vision loss globally and share several common risk factors such as aging, metabolic disorders, and systemic inflammation. However, the role of nutritional status and access to consistent, quality food has not been widely investigated in this context. Understanding whether individuals facing food insecurity are more susceptible to chronic eye diseases could inform public health interventions that integrate nutritional support with vision care.

In parallel, a separate systematic review and meta-analysis was conducted to evaluate the prevalence and symptoms of Dry Eye Disease (DED) among individuals with chronic pain. Studies meeting inclusion criteria were extracted from established scientific databases including The Cochrane Library, Web of Science, MEDLINE, and EMBASE. These studies specifically compared DED prevalence and symptomatology between individuals with chronic pain disorders and healthy control groups. The outcome measures were separated into DED signs (clinical measures such as tear breakup time and corneal staining) and symptoms (patient-reported discomfort, dryness, or foreign body sensation). Chronic pain conditions were categorized using the International Classification of Diseases (ICD-11) definitions provided by the International Association for the Study of Pain (IASP).

Quality assessment of the selected studies was performed using the Newcastle-Ottawa Scale, which evaluated aspects such as selection bias, comparability of study groups, and outcome ascertainment. Preliminary analysis suggested a significantly higher rate of DED symptoms among individuals with chronic pain conditions, supporting a potential link between systemic pain and ocular surface dysfunction. These findings point to an interrelationship between pain processing and ocular surface health that may involve shared inflammatory or neurological pathways.

In the pediatric population, rheumatological diseases can affect a wide range of tissues and organs, often in unpredictable ways. Unlike many adult autoimmune disorders that may target specific organs, children with immune dysregulation often present with overlapping syndromes involving multiple systems. Among these, inflammatory diseases of the eyes, gastrointestinal tract, and bones stand out for their complexity and potential long-term consequences. Examples include pediatric uveitis, inflammatory bowel diseases with ocular manifestations, and chronic bone inflammation syndromes. These conditions may involve mechanisms such as vasculitis, dysregulated immune signaling, and persistent inflammation. If the systemic extensions of these diseases are not thoroughly evaluated, important clinical associations may be missed, delaying diagnosis and treatment. In children, early identification and intervention remain essential for preserving vision and managing long-term inflammatory damage.

CONCLUSION

Turning to hematologic disorders, allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a life-saving intervention for many malignant and non-malignant conditions. However, this procedure carries significant risks, including chronic graft-versus-host disease (cGVHD), which occurs in 30% to 70% of

Correspondence to: Neha Kapoor, Department of Vision Studies, Atlantic University, Mumbai, India, E-mail: nehakapoor@atlanticuniv.in

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transplant recipients. Among the affected organs, the eyes are particularly vulnerable. Ocular GVHD (ocGVHD) is reported in over half of individuals with cGVHD, and the condition can lead to substantial visual discomfort and impairment. Patients typically present with symptoms such as dryness, burning, irritation, and visual decline, which significantly interfere with quality of life and daily functioning. Currently available treatments for ocGVHD include topical immunosuppressants such as tacrolimus and cyclosporine, corticosteroids, and lubricating eye drops. While these agents may provide some relief, the overall effectiveness tends to be limited, and many patients continue to experience persistent symptoms. There is a clear need for better therapeutic strategies that address the underlying immune dysfunction more effectively while preserving ocular integrity.