Commentary: Adult-onset vernal keratoconjunctivitis-like disease in human immunodeficiency virus

Human immunodeficiency virus (HIV) causes progressive damage to the immune system of the infected individuals, which leads to an increased incidence of opportunistic infections and secondary malignancies.

Ocular involvement may be observed in 52-100% of cases with HIV and the severity correlates with the immune status and CD4 counts.[1-3] The ophthalmic manifestations of HIV encompass malignancies of lids, conjunctiva and orbit, opportunistic viral, fungal and bacterial infections involving both anterior and posterior segments, HIV retinopathy and optic nerve involvement causing optic neuropathies and optic nerve atrophy.

Before the advent of highly active antiretroviral therapy (HAART), approximately 50% of infected individuals

developed anterior segment manifestations and 25% developed adnexal and orbital manifestations involving the eyelids, eyelashes, and the conjunctival and lacrimal drainage systems.[3,4] The widespread use of HAART has reduced the morbidity and mortality associated with the disease, as well as altered the incidence and natural history of many opportunistic infections in patients with acquired immunodeficiency syndrome (AIDS). The hallmark feature of ophthalmic manifestations of AIDS is the paucity of inflammation; however, the immune recovery associated with the institution of HAART has led to a change in the disease pattern and ocular involvement.[5] The new pattern of ophthalmic AIDS is characterised by a heightened inflammatory response and its associated complications, such as immune-recovery uveitis and drug-induced toxicity.[5]

Vernal keratoconjunctivitis (VKC) is a chronic ocular allergic disease that primarily affects children and adolescents. Rarely, late-onset VKC may be observed in young adults with a similar constellation of signs and symptoms as seen in pediatric patients. VKC is uncommonly associated with HIV and reported in only 0.7% of patients with the disease.[6]

In this study, the authors evaluated the immune status in patients with adult-onset VKC and observed 78.8% cases to be suffering from HIV.[7] The study was conducted in South Africa with a high incidence and prevalence of HIV. They observed a significant association between the severity of immunodeficiency and adult-onset VKC. HIV results in dysregulation of the immune system which may predispose to the development of VKC-like disease in adults HIV. A new-onset VKC like disease in adults in areas with a high-prevalence of HIV should alert the clinicians to test for any underlying immunodeficiency.

The pathogenesis of VKC in HIV may be explained by the immune dysregulation and a shift in the T-helper (Th) cell response from Th-1 to Th-2 predominance observed with a decrease in the CD4 cell count.[8] VKC is associated with an increased expression of T-helper 2 (Th 2) cells and cytokines including imunoglobulin E (IgE). Immune dysregulation in HIV leads to increased levels of total serum IgE, decrease in Th1 response and Th2 predominance which may lead to the development of VKC-like disease in adults suffering from progressive HIV.

A persistent IgE hyperproduction appears to be associated with a severe decline in CD4+ cell count and may be a useful marker to monitor disease progression.[9] The present study did not observe any correlation between serum IgE levels and the immune status; however, a lower CD4 count was associated with an increased risk of VKC-like disease.

Initiation of systemic steroids or immunosuppression is not recommended for the treatment of VKC in HIV patients due to the immunocompromised state. Effective antiretroviral therapy might be indicated in such cases to improve the CD4+ counts that would subsequently reverse the Th1–Th2 shift and alleviate the symptoms.[8]

To conclude, ocular manifestations of HIV encompass various anterior and posterior segment pathologies and their severity correlates with the CD4 cell count. VKC is uncommonly observed in cases with HIV and responds well to the institution of HAART. The presence of adult-onset VKC-like disease may be indicative of underlying immune dysregulation in regions with a high prevalence of HIV.

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Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_1014_20

Cite this article as: Kaur M, Bhai N, Titiyal JS. Commentary: Adult-onset vernal keratoconjunctivitis-like disease in human immunodeficiency virus. Indian J Ophthalmol 2020;68:1554-5.