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SUPPLEMENT ARTICLE

Persistent Inflammation in Treated HIV Disease

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The World Health Organization now recommends that essentially all persons with newly diagnosed human immunodeficiency virus (HIV) infection should begin treatment immediately. Currently, >15 million persons infected with HIV are receiving antiretroviral therapy (ART) worldwide, and this number will expand in coming years, with a goal of treating 90% of the HIV-infected population (estimated at 37 million) by 2020. Although ART has dramatically curtailed AIDS-related morbidity and mortality rates, HIV-infected patients remain at increased risk for non–AIDS-defining illnesses, such as cardiovascular disease and cancers. The risks for these clinical manifestations are increased even among treated patients who take ART consistently and who achieve prolonged virologic suppression. Thus, finding effective approaches to subvert or delay adverse events in treated HIV-infected patients remains a high priority to optimize quality of life and normalize life span in these patients.

The factors underlying the heightened risk of non–AIDS-defining diseases in treated HIV-infected persons are complex, with contributing variables that may include timing of ART initiation, differences in ART combinations, existence of coinfections, nutritional status, and the presence of other lifestyle risks, such as smoking. Although the precise causal mechanisms of each of these outcomes is incompletely understood, non–AIDS-defining diseases seem to share underlying pathological mechanisms that involve chronic inflammation. Thus, by understanding mechanisms that drive inflammatory processes during ART administration, we may uncover interventions that improve HIV patient care. It is important to recognize that immune system damage occurring before initiation of ART is also a factor in chronic inflammation, because this may lead to irreversible perturbations. Hence, there is also strong rationale to stress the importance of broad HIV testing linked to early intervention.

In this supplement to *The Journal of Infectious Diseases*, several important issues related to persistent inflammation in treated HIV disease are reviewed. These articles address accumulated evidence linking inflammation with non–AIDS-defining disease, potential mechanisms that contribute to chronic inflammation and disease (eg, microbial translocation, cytomegalovirus coinfection, inflammatory cytokines, and inflammatory lipids), the interplay between obesity, malnutrition, and HIV infection in inflammatory processes, and the use of statins in treated HIV disease as an intervention strategy to reduce cardiovascular risk. This supplement, therefore, highlights the significance of non–AIDS-defining diseases, the link to inflammatory processes, and the potential for interventional strategies.

Importantly, although a cure for HIV disease is a high research priority with potentially important long-term benefits, it is not clear that the effects on immune system homeostasis and inflammation caused by chronic prior exposure to HIV replication will be fully reversible, even if viral eradication or a functional cure can be achieved. The importance of studying inflammation in the setting of HIV disease is underscored by the observation that many of the inflammatory processes being uncovered in the context of treated HIV infection seem important in other chronic inflammatory conditions that lead to morbid conditions in a far broader section of the population than reflected by HIV-infected persons alone. Thus, research into the pathogenesis of these outcomes and interventional trials to limit them remain an important priority.

Notes

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