

Title:

The Intestinal Microbiota, Microbial Translocation and Inflammation in Chronic HIV Infection

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Abstract:

In the current era of effective antiretroviral therapy (ART), HIV infection has become a chronic disease. Non-infectious complications such as cardiovascular disease, diabetes, metabolic syndrome, obesity and accelerated aging, all associated with chronic inflammation, are being seen with increased frequency in these patients. While ART is successful at suppressing viral replication to below the limits of detection in blood, there is concern that ongoing unexplained immune activation and inflammation are leading to these adverse outcomes. However, the specific mechanisms underlying persistent immune activation and chronic inflammation in these patients are not known.

The gut microbiota is critical for maintaining intestinal homeostasis and is known to play vital roles in mucosal barrier function and modulation of immune and inflammatory responses. Dysbiosis (an imbalance in the composition of the microbiota) has been implicated in the pathogenesis of chronic inflammatory conditions such as inflammatory bowel disease, diabetes and obesity (Brenchley and Douek, 2012). However, the role of the gut microbiota in persistent immune activation and inflammation in individuals with chronic HIV infection on suppressive ART has not been explored. Our hypothesis is that inflammation in these individuals is a consequence of microbial translocation across the gut due to intestinal dysbiosis. The goal of this pilot study was to determine if there is an association between intestinal dysbiosis and microbial translocation and systemic inflammation in individuals with chronic HIV-infection on suppressive ART.