Tropism Predicts CD4 Loss, Not Treatment Response

April 18, 2008

People who've never taken antiretroviral (ARV) therapy and have detectable strains of HIV that prefer the CXCR4 T-cell receptor face a higher risk of sudden CD4 cell declines than those with CCR5-tropic virus, according to a study published in the May 15 issue of *Clinical Infectious Diseases*. This finding suggests that people with X4-tropic HIV, or virus targeting both the R5 and X4 receptors (dual- or mixed-tropic HIV), should perhaps start ARV treatment earlier than is currently recommended.

Though a number of studies have demonstrated a link between the emergence of X4-tropic virus and CD4 cell declines, no one has clearly demonstrated that one causes the other. More recently another study found that the emergence of X4 virus did precede CD4 drops.

To determine the impact of X4 virus on disease progression and subsequent ARV therapy, Laura Waters, MD, and her colleagues from the St Stephen's Centre, Chelsea & Westminster Hospital in London, studied a subgroup of people living with HIV who had undergone tropism testing as a part of an epidemiology study.

Specifically, Waters's team followed 289 people who'd never taken ARV therapy, of whom 229 had only R5-tropic virus and 60 had dual- or mixed-tropic virus. The majority of the patients where white males. People with R5-only virus had a much higher average CD4 count and lower average viral load than people with dual- or mixed-tropic virus at the time that the team began to follow them.

Waters's team found that the group with dual- or mixed-tropic virus had a much more rapid loss of CD4 cells than people who had only R5-tropic virus. However, once people began taking ARV treatment, the difference disappeared. People with dual- or mixed-tropic virus had CD4 increases and viral load reductions equal to people with only R5-tropic virus.

Introducing the study results, Waters's team suggests that tropism testing may help predict people who should start ARV therapy earlier. Given the uneven CD4 count and virus levels at the study's initiation, and the fact that the average CD4 count in both groups was below 350, when current guidelines recommend starting treatment, it is not possible to use the results of this study to support that argument. Future studies, however, may prove this point.