

Risk of HIV transmission highest early in infection

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New evidence suggests that the risk of HIV transmission may be highest in the early stages of infection. According to a study published in the April 1 issue of *The Journal of Infectious Diseases*, now available online, early infection accounted for nearly half of all transmission occurrences in an HIV-infected population in the province of Quebec, Canada.

Bluma Brenner, PhD, and Mark Wainberg, PhD, of the McGill AIDS Centre in Montreal, and colleagues from several hospitals and health clinics in Canada studied HIV transmission through phylogenetic analysis—essentially, drawing the virus’s family tree. The technique follows the history of a virus as it spreads from one person to another by looking at the evolution of viral genetic material in infected individuals.

Drs. Brenner, Wainberg, and colleagues found that 49 percent of early infections formed phylogenetic clusters—very close branches on the family tree. This indicated that a large portion of HIV acquisition could be attributed to individuals transmitting the virus who were themselves in the early stages of infection, before the virus had had time to mutate much. Therefore, early infection—also known as primary infection—which represented “less than 10 percent of the total samples, disproportionately accounted for about half of subsequent transmission events.”

A high viral load associated with early HIV infection is what makes newly infected individuals so infectious, according to Drs. Brenner and Wainberg. In an editorial accompanying the article, authors Deenan

Pillay, MD, of the Health Protection Agency and University College London, and Martin Fisher, MD, of the Brighton and Sussex University Hospitals, pointed out that diagnosis of HIV reduces the risk of transmission. But, they note, symptoms of primary HIV infection are non-specific. Only a small proportion of infected individuals are diagnosed in early infection, thus compounding the difficulties in preventing transmission at that stage of infection.

“The early infection stage can be entirely asymptomatic,” Dr. Wainberg added. “This is why people who are recently infected may not know it, and will probably often test negative by conventional antibody screening. Hence, we must do a much better job of identifying recently infected people if we are to be able to counsel them to modify high-risk sexual behavior and desist from transmitting the virus.”

He suggested the development of affordable tests such as polymerase chain reaction assays to directly monitor the presence of the virus, instead of relying on the current method of antibody screening.

In addition, Dr. Pillay and Fisher asserted that more innovative and effective prevention strategies are needed to stem HIV transmission during primary infection and block the spread of drug-resistant viruses.

Source: Infectious Diseases Society of America

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