Outbreak of Rare Virulent Strain of HIV Among Gay Parisians

The strain was associated with a high viral load and low CD4 counts before men started treatment.

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An outbreak of a particularly virulent strain of HIV has been reported among gay men in Paris in recent years. The strain was associated with a high viral load and relatively low CD4 count before the men started antiretroviral (ARV) treatment, aidsmap reports.

Publishing their findings in the journal Eurosurveillance, a research team led by Marc Wirden, MD, of the Pitié Salpêtrière Hospital in Paris first recognized the outbreak between 2015 and 2017. During this period, routine drug-resistance testing conducted at the hospital on newly diagnosed HIV cases identified 10 infections that represented a new circulating form of the virus.

This recombinant strain, meaning it was the combination of the genetic characteristics of various other strains of HIV, included subtype B (predominant in Western Europe), subtypes A and G (common in sub-Saharan Africa) and subtype F2, which is very rare.

After alerting other French laboratories to their findings and requesting reports of similar strains of the virus, the investigators were able to identify the 49 total new cases that were diagnosed between 2013 and 2017. The outbreak was centered in the Paris area. All the individuals in question were white and of French origin, and all but one were male. Their median age was 35 years old.

Forty-five of the men identified as gay or were otherwise men who have sex with men, three were heterosexual and in one person's case the likely mode of transmission of the virus was unknown.

Nineteen of the cohort members were diagnosed during primary HIV infection, or very soon after they had contracted the virus, and an additional 10 had been living with the virus for less than a year when they were diagnosed.

Twenty-four of those with a recent infection provided information about their behaviors related to HIV risk. All were gay men and reported sex that put them at risk for the virus around the time they likely contracted HIV. Twenty men reported meeting casual sexual partners through smartphone apps and seven said they met partners at cruising areas. None took pre-exposure

prophylaxis (PrEP) and 18 were unaware of the HIV prevention pill at the time they were diagnosed.

The median viral load at diagnosis was about 200,000 among those with non-primary infection and 600,000 among those with primary infection. The median CD4 count in each group was 371 and 407, respectively.

There was information about the tropism of HIV in 26 of the cohort members. This refers to which of the two coreceptors on the surface of immune cells the virus latches onto to begin the process of infecting the cell: CCR5 or CXCR4. Typically, HIV is CCR5-tropic, meaning it affixes to that coreceptor. The virus is more likely to switch to an CXCR4-tropic state later in the course of infection. This shift is associated with accelerating HIV disease and a rapid loss of CD4 cells.

The HIV tropism in these individuals largely shifted from CCR5 to CXCR4 between 2013 and the 2016 to 2017 period.

There were data available regarding the 12-month mark after 31 of the cohort members started ARV treatment. Twenty-five of them had a fully suppressed viral load, five had a viral load between 50 and 100 and one person had a viral load of 5,500. The average CD4 count in this group was now a healthy 777.

Genetic analyses indicated that all 49 cases in the analysis were part of the same transmission cluster.

The study authors suggested that the use of smartphone apps may have contributed to the spread of the new viral strain in Paris. However, such apps can be harnessed for public health purposes, the investigators noted. In this instance, for example, these apps could serve as a useful medium for targeting HIV prevention messages to those who may be at risk of contracting the strain seen in the outbreak.

To read the aidsmap article, click here.

To read the study abstract, click here.
