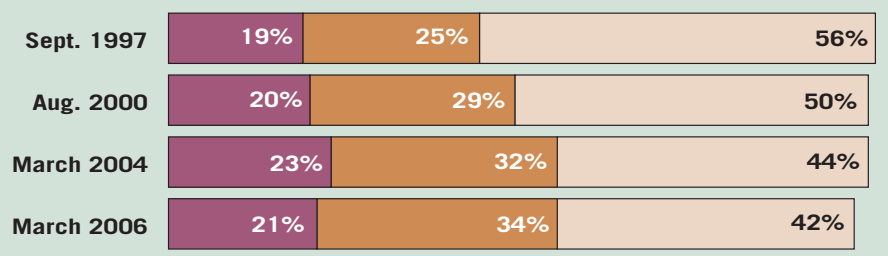
DATA WATCH

About Half of Nonelderly Americans Have Been Tested for HIV in Recent Years



Notes: Population is under 65 years of age. Numbers may not add to 100% due to rounding.
Source: Data based on surveys by the Kaiser Family Foundation

Findings on 'Elite Controller' Group Elucidate HIV Control

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ELSEVIER GLOBAL MEDICAL NEWS

SAN FRANCISCO — New insights into HIV disease progression are emerging from a study of a group of HIV-infected patients known as "elite controllers," so called because their viral loads remain low and their infections do not appear to progress, even without medication.

The findings suggest that chemokine (C-C-motif) receptor 5 (CCR5) expression and responses in the gut may be crucial prognostic factors.

But their long-term control of the infection probably is not that simple, Dr. Steven Deeks said at a meeting on HIV management sponsored by the University of California, San Francisco, where he is affiliated with the department of medicine.

He and his associates at Massachusetts General Hospital, Boston, have studied a cohort of approximately 110 elite controllers in an effort to learn how these patients keep the virus at bay. These individuals, defined as maintaining for many years a viral load of less than 75 copies/mL, may make up only 0.1%-1% of persons infected with HIV.

The elite controllers tend to have more of a specific type of HIV-directed CD4 and CD8 T cells, and to have a particular haplotype of the human leukocyte antigen (HLA) molecule expressed by antigen presenting cells. But these features are not universal, said Dr. Deeks.

These patients, who have maintained for many years a viral load of less than 75 copies per mL, may make up 0.1%-1% of persons infected with HIV.

Notably, genetic analysis has shown that these individuals tend to have polymorphisms within the CCR gene promotor region that are associated with low expression of the CCR5 receptor, which is used by HIV to enter the cell.

These patients also tend to have a lot of the ligand that binds to CCR5, competing with HIV.

In his own cohort and in the Boston cohort, every elite controller has this favorable profile, Dr. Deeks said.

What might be most important is that these individuals appear to preserve their gut mucosal integrity, he said.

In most HIV-infected patients, infection initially causes a drastic, almost complete, depletion of CD4 cells surrounding the gut, where they are most plentiful. The cell destruction causes inflammation, which compromises the gut's mucosal integrity. The loss of integrity allows persistent entry of toxins into the system, which attracts more T cells, which are then infected and destroyed.

But in a study that included four elite controllers, the elite controllers did not have such depletion (Proc. Natl. Acad. Sci. U.S.A. 2005;102:9860-5).

Nonetheless, the findings do not rule out the possibility that these persons may be infected with a compromised virus, and some evidence suggests this may be the case, Dr. Deeks added.

"It's reasonable to assume that there are several different pressures that contribute to achieving long-term innate control," he said. ■