# AIDS briefs

## Long-term antiretroviral therapy can normalise CD4 count

Combination antiretroviral therapy (cART), taken for long enough, can normalise CD4 counts, according to this study published in the *Lancet* recently.

Researchers compared increases in CD4 counts in 1 835 antiretroviral-naïve patients who started combination antiretroviral therapy from EuroSIDA, a pan-European observational cohort study. They found that the only groups without significant increases in CD4 count were those where cART had been taken for more than 5 years with a current CD4 count of more than 500 cells/µl (current mean CD4 count 774 cells/µl; 95% CI 764 - 783). Patients starting cART with low CD4 counts (<200 cells/µl) had significant rises in CD4 counts even after 5 years of cART.

The conclusion is that all patients who maintain viral suppression for long enough while on cART may eventually normalise their CD4 counts.

What is the implication of this finding for developing countries, where the bulk of HIV infections occur? Commenting in the same issue, Gary Maartens and Andrew Boulle suggest that the average patient who starts cART with advanced disease can now be expected to normalise their CD4 counts, provided maximum virological suppression can be maintained. However, as they point out, many low-income countries cannot monitor viral load, and the more expensive assays that have detection limits of 50 copies/ml are not widely available. Therefore the ability to confirm maximum virological suppression is limited. Nevertheless, the researchers have shown that at least for patients with ideal responses to combination antiretroviral therapy, normalisation of CD4 counts is likely to be achievable across a range of baseline counts.

Morecroft A, *et al. Lancet* 2007; 370: 407.

## Risk of neonatal tetanus increased by maternal HIV and malaria

Kenyan women who suffer from HIV and malaria provide fewer tetanus antibodies to their newborns, according to a recent study in the *Journal of Infectious Diseases*. This results in a higher risk of neonatal tetanus among these children. Maternal and neonatal tetanus cause 213 000 deaths annually. About 85% of the mortality is in newborns and 7 - 14% in women in the postpartum period.

Researchers recruited women who were delivering between January 1996 and July 1997 at the Maternity Department of Kilifi District Hospital, Kenya. On admission, blood was tested for HIV and malaria status. After delivery, cord and placental blood was taken, along with a placental biopsy. History of tetanus vaccination among the mothers was determined using a questionnaire, which also collected demographic and socio-economic data.

A total of 704 paired maternal cord serum samples of women who had a history of tetanus vaccination were tested for tetanus antibodies. Of these women, 12% were HIV positive, 44% had placental malaria and 7% had both malaria and HIV. Thirty-seven women (5.3%) and 55 newborns (7.8%) were seronegative for tetanus antibodies. The seronegative women were younger, primigravida and had not had tetanus vaccination during the index pregnancy. Of the 37 babies born to seronegative mothers, 35 (94.5%) were seronegative. The remaining 20 seronegative babies were born to women who, although tetanus seropositive, had low tetanus antibody titres, were younger, primigravida and who also had HIV or placental malaria.

Tetanus antibody levels were significantly reduced by 36% and 41% in women with active chronic or past placental malaria, respectively. Antibody levels were 38% lower in HIV-infected than HIV-uninfected women and 33% lower in those who had both HIV and malaria.

These findings confirm that malaria and HIV infections may hinder efforts to eliminate maternal and neonatal tetanus. However, the high seropositivity in women who received the tetanus vaccine during the index pregnancy confirms the usefulness of vaccination in women of childbearing age in areas with co-endemic HIV and malaria.

The implications for public health policy are that pregnant women need to be offered not only antiretrovirals where necessary, but also intermittent presumptive treatment of malaria and malaria prophylaxis in endemic areas. Additional doses of tetanus vaccine during childhood and promotion of neonatal health and clean delivery strategies are also important.

Cumberland P, *et al. J Infect Dis* 2007; 196: 550-557.