Highlights of the International AIDS Society Conference

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Almost 6000 delegates attended the fifth International AIDS Society Conference on Pathogenesis, Treatment and Prevention in Cape Town, South Africa (July 19–22). The conference highlighted advances in basic and clinical science and biomedical prevention, and included a new track on operational research.

Basic science

The role of host genetics in HIV disease progression is increasingly well understood. In a plenary session Amalio Telenti (Institute of Medical Microbiology, Geneva, Switzerland) showed that 22% of population variance in viral load can be explained by common genetic variants, demographics, and population factors. The use of such data might help clinicians predict disease progression. Telenti also summarised evidence on the relation between genetic determinants and plasma-drug concentrations for several drugs that could provide guidance for dose-adjustment, potentially reducing cost and toxicity.

Clinical science

Results from two drug trials held promise for treatment simplification in developed countries. Both the MONOI (abstract WELB102) and MONET (TUAB106-LB) trials reported non-inferior efficacy at week 48 of darunavir or ritonavir monotherapy *vs* darunavir or ritonavir plus nucleoside reverse transcriptase inhibitors. Switching to monotherapy would be expected to provide simpler dosing and to reduce treatment costs. For developing countries, presentations focused on earlier treatment initiation. Data from a randomised trial in Haiti (CIPRAHT001) provided strong evidence that early treatment initiation improves survival. The study, which was stopped early, found a four-fold reduction in mortality and a two-fold reduction in incident tuberculosis among patients who started treatment earlier (CD4 350 cells per μL) compared with those who started later (CD4 <200 cells per μL). Treating earlier will cost more in the short term, but long-term cost savings are expected as overall incidence of opportunistic infections will be reduced. A few days after the conference the South African government announced a revision to its treatment guidelines, including earlier initiation.

Biomedical prevention

Results of all completed trials of control of sexually transmitted diseases, microbicides, pre-exposure prophylaxis, HIV vaccines, and male circumcision were summarised in a plenary address Ronald Gray (Johns Hopkins, MD, USA). Of 28 trials done to date, only four have reported significant efficacy (three of male circumcision), leading to calls for fewer trials of better quality and a renewed emphasis on basic science, particularly for vaccine development. A plenary by Reuben Granich (WHO, Geneva) examined the potential role of antiretroviral treatment as a means of preventing transmission, following the publication of a model in the *Lancet* suggesting a reduction in prevalence to below 1% by 2050 (*Lancet* 2009; **373:** 48–57). Two presentations supported the role of increased antiretroviral coverage to prevent other infections: a study from Uganda (TUPDB104) showed that malaria incidence fell by 75% over a 4-year period as HAART coverage increased, whereas a study from South Africa (WELBB105) found three-fold reduction in tuberculosis prevalence over a 3-year period among HIV-positive individuals. Data from five studies supported the safety and efficacy of providing HAART to mothers during pregnancy and after delivery to reduce vertical transmission. Among these, a randomised comparison of two triple-therapy combinations done in Botswana (WELBB101) found that vertical transmission reduced to 1% among breastfeeding mothers receiving HAART. A five-country trial (LBPEC01) that randomly assigned pregnant women to triple therapy or short-course prophylaxis (as recommended by WHO) found a 42% decrease in HIV transmission in the HAART group. These studies call for an urgent review of current WHO guidelines.

Operational research

In rural sub-Saharan Africa, access to treatment is commonly denied to patients who live far from health centres. A cluster-randomised trial of facility versus home-based care done jointly by researchers at the London School of Hygiene and Tropical Medicine and the Ugandan non-governmental organisation TASO (MOAD101) found no difference in terms of mortality and virological suppression. Median annual costs for patients accessing care were five-times less via the home-based approach. Another important barrier to accessing care is the chronic shortage of doctors to provide antiretroviral therapy. To overcome this, nurse-based models of care have been proposed. Two studies—a randomised trial from South Africa (LBPED03) and a concordance study from the Democratic Republic of the Congo (TUPED133)—found no difference in the performance of doctors and nurses in the provision of ART care, providing reassuring evidence of effectiveness.

AIDS in the recession

Studies pointed to the need to improve the current AIDS response by treating earlier, with better drugs. At the same time, the global HIV response faces a 40% funding gap: 6·7 million are still without treatment and 2·7 million people are newly infected each year. The challenge in moving forward lies in finding the balance between what science says should be done and what economic reality allows.

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