

## Counselling, not alarm device, had best effect on antiretroviral adherence

CAROLE LEACH-LEMENS

Patients in Nairobi, Kenya, getting intensive early adherence counselling when starting antiretroviral therapy, were 29% less likely to have poor adherence and 59% less likely to have virological failure compared with those getting no counselling. Michael H Chung and colleagues reported in a randomised, controlled trial published in the March 2011 issue of *PLoS Medicine*.

The positive effects of counselling on adherence were seen immediately after starting antiretroviral therapy and maintained throughout the 18-month follow-up period. Use of an alarm device had no effect on adherence or virological outcomes.

Public health concerns that scale-up of antiretroviral treatment in sub-Saharan Africa would lead to poor adherence and widespread drug resistance have been proven wrong, note the authors. They cite a recent meta-analysis of 27 cohorts from 12 African countries where adequate adherence was seen in 77% of subjects compared with 55% among 31 North American cohorts.

Choice of treatment regimen may also affect drug resistance development. In most resource-poor settings antiretroviral treatment regimens include non-nucleoside reverse transcriptase inhibitors (NNRTIs). NNRTIs remain in the blood for weeks after a single dose. This means that patients on NNRTI-containing regimens may not experience resistance unless adherence drops below 80%.

Comprehensive HIV treatment and care programmes in sub-Saharan Africa that include adherence interventions are dealing with increasing financial constraints and limited resources. So effective delivery of services requires identifying cost-effective interventions. While adherence counselling and cheap alarm devices are in widespread use, limited evidence exists of their effectiveness.

The authors chose to compare the effect of counselling and the use of an alarm device on adherence and biological outcomes in a resource-poor setting. Between May 2006 and September 2008 400 newly diagnosed patients, aged 18 and over, starting free antiretroviral treatment at the Coptic Hope Center for Infectious Diseases in Nairobi, Kenya, were randomised to one of four arms: counselling; alarm device; counselling and alarm device; and neither counselling nor alarm device. Of the 400, 362 started ART (fixed-dose combination pills: stavudine (d4T), lamivudine (3TC) and nevirapine) and 310 completed the 18-month follow-up.

Blood was taken at enrolment for baseline CD4 cell counts and viral load. Blood was then drawn at 6, 12 and 18 months after starting ART. Patients went to the clinic monthly with their pill bottles. The pharmacists counted and recorded the number of pills remaining and refilled the prescription. Those with an alarm device were asked about use of the device and answers recorded. Defective or lost devices were replaced.

Over two-thirds were female with a median age of 36 (IQR: 31 - 42). The median monthly rent was US\$28 (IQR: 11 - 56), the median distance from home to clinics was 10 kilometres (IQR: 6 -15), and 10% had ever given or received money/favours in exchange for sex.

The study found a significant association between a behavioural intervention (adherence counselling) and adherence and virological impact. Those participants getting intensive adherence counselling were 59% less likely to experience viral failure (HIV-1 RNA  $\geq 5\ 000$  copies/ml) (HR 0.41; 95% CI: 0.21 - 0.81;  $p=0.01$ ). Participants getting intensive counselling were also 29% less likely to experience poor adherence (<80%) (HR 0.71; 95% CI: 0.49 - 1.01;  $p=0.055$ ) compared with those getting no counselling. There was no significant effect on poor adherence (HR 0.93; 95% CI: 0.65 - 1.32;  $p=0.7$ ) or viral failure (HR 0.99; 95% CI: 0.53 - 1.84;  $p=1.0$ ) when using an alarm compared with not using an alarm.

This suggests, contrary to other findings, reminding patients when to take medications may not be the primary barrier to adherence. Use of cell phones, the authors add, may provide patient support rather than a reminder. Neither counselling nor use of an alarm device had any significant effect on death rates or CD4 cell counts. Dedicating time, the authors note, on communication about adherence, possibly strengthens a provider-patient relationship, improving adherence through trust. Treatment failure is substantially reduced, as this study demonstrates.

An intervention that reduces viral failure by over half provides significant cost savings, they add. Costs of going on to more expensive second-line treatments are delayed and the potential costs of treating opportunistic infections eliminated.

Limitations include a possible bias towards poorer patients according to an analysis comparing those lost to follow-up and those who were retained. Such patients could be more receptive to attentive counselling and free medications, note the authors. Pill counts may overestimate adherence since missing pills may not have been taken but thrown away, shared or lost.

The authors conclude: 'As antiretroviral treatment clinics expand to meet an increasing demand for HIV care in sub-Saharan Africa, adherence counselling should be implemented to decrease the development of treatment failure and spread of resistant HIV.'

Chung MH, *et al.* A randomized controlled trial comparing the effects of counseling and alarm device on HAART adherence and virologic outcomes. *PLoS Med* March 2011;8(3):e1000422. doi: 10.1371/journal.pmed.1000422 (view full text article here).

Article courtesy of [www.aidsmap.com](http://www.aidsmap.com)