AIDS BRIEFS

TWO AFRICAN HERBAL MEDICINES SIGNIFICANTLY INHIBIT THE METABOLISM OF ANTIRETROVIRALS

In vitro studies of 2 herbs widely used in Africa to treat HIV-positive people have shown significant interactions with antiretrovirals. Researchers looked at the effects of *Hypoxis hemerocallidea* (African potato) and *Sutherlandia*, both used widely against HIV in Africa, on the metabolism of antiretrovirals.

Different formulations of both herbs were tested for their ability to inhibit the CYP3A4 pathway, a common metabolic pathway among protease inhibitors and non-nucleoside reverse transcriptase inhibitors (NNRTIs). African potato showed significant inhibition of CYP3A4 activity, as did *Sutherlandia*. In addition, both herbs showed significant activation of PXR, a nuclear receptor that modulates expression of CYP3A4.

The investigators conclude that their findings have identified the potential for significant drug interactions for both these herbs and suggest co-administration of these drugs with antiretrovirals could result in early inhibition of drug metabolism and later decreased drug exposure with long-term therapy. They suggest that appropriately designed pharmacokinetic studies are needed to look at the true potential of herbal drugs to interact with antiretrovirals.

Mills E, *et al. AIDS* 2005; **19:** 95-97.

EFFECTS OF MALARIA ON THE CONCENTRATION OF HIV-1 RNA

A recent study published in *The Lancet* suggests that HIV-1-infected individuals with malaria have a significantly increased viral load, which, the authors suggest, may enhance HIV transmission and accelerate disease progression.

Investigators recruited 367 HIV-positive individuals from a clinic in rural Malawi. At baseline, 334 people showed no signs of malaria, but 148 had at least one malaria episode during follow-up. Of these, 77 had HIV-1 RNA measurements at baseline, during malaria and after malaria. When malaria was defined as any signs of parasites, HIV-1 RNA concentration almost doubled between baseline and malaria. Increases in HIV-1 RNA were greatest for people with fever, a high parasite density and a CD4 count more than 300 cells/µl. People without malaria parasites in their blood did not show any changes in HIV-1 RNA levels.

Kublin JG, *et al. Lancet* 2005; **365:** 233-240.

TREATMENT FAILURE WILL BE THE MAIN SOURCE OF DRUG-RESISTANT HIV IN AFRICA IN THE NEXT DECADE

A model developed by biomathematicians Sally Blower and colleagues and published recently in *AIDS* shows that at currently planned levels of treatment in Africa, the transmission of drug-resistant virus will remain below the levels seen in the developed world for at least the next 10 years. The model also suggests that introducing antiretroviral therapy will have very little effect on the rate of HIV transmission and that most drug resistance will arise from treatment failure.

Using biomathematical models, the group looked at the effects of different percentage treatment coverage in populations. If 25% of the total HIV-positive population are receiving treatment within 5 years, they predict that only 5% of prevalent infections will be drug resistant. Below this level, the World Health Organization does not recommend national surveillance for drug resistance. However, if 30 - 40% of the HIV-positive population are treated, the prevalence of drug resistance is predicted to rise to 10 - 15% at 5 years and 25 - 40% at 10 years. They also predict that if only 10% of HIV-positive people are treated then HIV prevalence will not have decreased after 10 years and the incidence rate will have decreased by less than 5%.

The conclusion is that large-scale surveillance systems for detecting and monitoring transmitted drug resistance virus in Africa will not be necessary. They suggest that sentinel surveillance at treatment centres that are covering more than 10% of HIV-positive people should be enough to monitor resistance.

Blower S, *et al. AIDS* 2005; **19:** 1-14.

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