by-products of metabolism, is able to elicit a phototoxic reaction [4,9].

The imputability of voriconazole in the development of SCCs is less evident. A prolonged voriconazole therapy causing phototoxicity has been already described in the rapid development of SCCs in a HIV-negative patient [5]. However, the impact of immunosuppression, particularly HIV infection, needs to be discussed. For HIV-infected patients, risk factors for SCCs (sun exposure, skin phototype and family history of skin cancer) are the same as in the general population. SCCs usually appear on head and neck. The mean age is 49 years (versus 75 years usually) [11,12]. SCCs occur at each stage of HIV disease and degree of immunosuppression [11,13,14]. In the setting of HIV infection, they have potential for aggressive growth with rapidly growing tumours, high risk of local recurrence and metastasis [15]. The morbidity and mortality are more dependent on the initial control of local and metastatic disease (surgery with radiation therapy) than on the level of immunosuppression or history of opportunistic infection [15].

It is important to prevent phototoxicity in mild phototype patients treated by voriconazole. A prolonged therapy should be avoided when phototoxicity appears because of the risk of aggressive multifocal SCCs in almost immunocompromised patients such as HIV-infected individuals.

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Antiretroviral therapy adherence in children: outcomes from Africa

Reports have confirmed the clinical efficacy and feasibility of highly active antiretroviral therapy (HAART) in adult HIV patients in Africa [1]. Additionally, despite international concern that 'antiretroviral anarchy' due to poor adherence was eminent in resource-limited settings [2], data cited by Attaran indicates that 'Africans take HAART more faithfully than North Americans [3–5].' Attaran notes, 'Using the customary definition that 'good adherence' means taking HAART as prescribed 95% of the time or more, 82% of Africans succeeded at that goal, compared with only 55% of North Americans ($P < 0.001$) [3].'

Preliminary studies suggest that higher rates of HAART adherence in the developing world hold true even for pediatric patients. Our group at Sinikithemba HIV/AIDS clinic in South Africa recently documented the experience of 151 children who initiated HAART [6].

Eight-nine percent of our cohort reported greater than 95% adherence resulting in 84.0 and 80.3% virologic suppression (or less $\leq$50 copies/ml HIV RNA) at 6 and 12 months, respectively [6]. Similarly, Eley [7] in South Africa and Wamalwa *et al.* [8] in Kenya report higher rates of HAART adherence and virologic suppression in children than found in the developed world. In contrast, pediatric cohorts from the United States and Europe globally reported lower virologic efficacy ranging from 25 to 50% [9] attributed in part to lower adherence.

Is the difference in virologic suppression between African and Western pediatric cohorts due to varying adherence rates or to other factors such as differences in patient populations, viral subtypes, HAART regimens, etc.? Perhaps all of the above – at this time, the data lends itself only to guarded and heavily qualified interpretation. Future systematic meta-studies similar to Mills *et al.* [4,5] that focus on African pediatric adherence should be encouraged. These studies may well conclude definitively that African children's adherence to HAART is higher than their Western peers, and responsible for increased therapeutic response.

These apparent higher rates of HAART adherence in African cohorts have been the source of much theorizing from within the HIV research community. Attaran hypothesizes, 'to live in Nairobi means to face so many privations compared to New York that to overcome them and excel seems almost storybook untrue. But privation can cut both ways. People who have been denied the necessities of life, who then receive the gift of medicines and a chance to live, may be more likely to appreciate HAART [3].'

Although not disputing that privation/increased valuation of HAART has some effect on improved patient adherence and outcomes, we believe there are larger (and, more importantly) other manipulable forces at play. In the Sinikithemba cohort, although half of the children are cared for by at least one HIV-positive caregiver, these caregivers showed a protective effect against pediatric mortality when compared with caregivers who were untested or HIV-negative [6]. We hypothesized that HIV-positive caregivers on HAART at the same treatment site may be able to provide more informed treatment support for their children resulting in better outcomes [6]. This suggests an important paradigm shift in the way we think about families infected with HIV: instead of families 'ravaged' or 'devastated', perhaps we might consider that, if given access to treatment through a family-centered model, those on treatment can instead be sources of unity, continuity, knowledge, and strength for pediatric patients and other HIV-infected family members. We advocate for family-centered HAART treatment models in order to protect the integrity of caregiving structures and prevent the negative pediatric outcomes associated with the decline in health or death of primary caregivers [6].

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