

### The importance of HIV antenatal screening programs for pregnant women

*To the Editor*

I read the interesting study by Al-Jabri et al<sup>1</sup> on the importance of human immunodeficiency virus (HIV) antenatal screening programs for pregnant women. The increased prevalence of HIV infection in women is leading to a rising number of children born to HIV infected mothers. As therapeutic possibilities for HIV/acquired immunodeficiency syndrome (AIDS) increase, the detection of undiagnosed HIV infections in pregnant women, followed by adequate management, is of crucial interest. An estimated 2.5 million children are currently living with HIV, the vast majority as a result of mother to child transmission. Prevention of perinatal HIV infection has been immensely successful in developed countries. A comprehensive package of services, including maternal and infant antiretroviral therapy, elective cesarean section, and avoidance of breastfeeding, has resulted in transmission rates of less than 2%. However, in developing countries, access to such services is often not available.<sup>2</sup> I have 3 comments on the aforementioned study.

First, the enzyme-linked immunosorbent assay (ELISA) and Western blot (WB) test are the most commonly used laboratory tests for HIV infection. Both detect antibodies in serum to HIV. The standard HIV testing algorithm is complex and includes the use of the sensitive ELISA followed by a WB test if the ELISA is positive. Despite the high sensitivity and specificity of both tests, false positive and false negative results do occur. The most probable causes of the false positive results are serological cross-reactivity or non-specific immune reactivity.<sup>3</sup> A false positive result of the screening testing elicits important concerns as it might cause unnecessary emotional stress to pregnant patients waiting for confirmatory test results. In regions with an extremely low HIV prevalence, the positive predictive values of screening are at an unacceptably low rate.<sup>4</sup> Al-Jabri et al<sup>1</sup> demonstrated in their study on 11553 Omani pregnant patients that by ELISA testing, 21 pregnant patients were positive for HIV-1 (prevalence rate: 0.2%) and 3 pregnant patients were weakly positive for HIV-1 (24 pregnant; 0.2% prevalence rate). However, 15 pregnant patients were confirmed HIV-1 positive using WB test (prevalence rate: 0.13%). Significant concerns exist regarding the concurrently applied WB test for confirmation of the first positive

result of ELISA testing. In a recent Russian study,<sup>5</sup> the HIV p24 antigen was detected in serum samples in 8.4% of pregnant patients with an equivocal result of WB test and in 4.2% of pregnant patients with negative and positive results of WB test. The presence of HIV p24 antigen was noticed to be correlated with a high viral load, and, in patients with confirmed diagnosis, with low CD4 cells count (<500 cells/ml). The HIV p24 antigen was detected in more than 30% of persons with confirmed seroconversion after primary testing. The study concluded that in groups of persons with negative and equivocal results of WB assay, detection of HIV p24 antigen points to the presence of infection and could be the reason for the final diagnosis.

Second, the highlighted need for antenatal screening for all pregnant women attending different hospitals and antenatal clinics in Oman as addressed by Jabri et al<sup>1</sup> must be taken with caution because of the following 5 reasons: 1) The effectiveness of antenatal HIV screening depends on the prevalence of HIV infection in a given population. The reported prevalence rate of HIV-1 infection in the studied Omani pregnant patients of 0.13% is not truly critical to justify routine antenatal screening. It looks similar to reports from some Arabian countries, namely, Saudi Arabia (0%),<sup>6</sup> Algeria (0.53%),<sup>7</sup> and Sudan (0.8-3.0%).<sup>8</sup> It is even much less than the 1-2% reported in pregnant patients in Africa, where it occupies the main bulk of worldwide HIV index cases.<sup>9</sup> 2) The effectiveness of antenatal HIV screening also depends on the capability to predict HIV risk based on various demographic and behavioral factors. Thus far, no studies are present that elucidate various epidemiologic, clinical, and laboratory profiles of HIV infection in Omani pregnant patients. 3) The impact of antenatal screening on the lives of pregnant patients and their families needs to be considered. Many women feel pressured into HIV testing during pregnancy, do not receive adequate pre-test counseling, or do not give truly informed consent. Some women who test positive experience significantly more discrimination from their partners, families, and community members than HIV positive men do. As a consequence, large numbers of women diagnosed during pregnancy do not tell their husbands their status because they fear blame, abandonment, or abuse, including physical assault. Women who do disclose their HIV status may face dramatic negative repercussions on their own and their children's wellbeing. Consequently, it is unfair to test women during pregnancy solely or mainly to help prevent perinatal transmission of HIV if there are no available support services to protect the women's rights,

enable them to live healthy after the HIV positive diagnosis, and engage them in the policies and programs that affect women's lives.<sup>10</sup> 4) Antenatal screening has a remarkable limitation that the long-term safety data for antiretroviral agents, which is supposed to be offered to the positive HIV pregnant patients, are not yet available. Moreover, current data are yet insufficient to accurately estimate the benefits of screening on the long-term maternal disease progression or other clinical outcomes, such as horizontal transmission.<sup>11</sup> 5) The economic budget of the antenatal screening program needs to be well-defined as the cost of that program is mainly influenced by the antenatal coverage, the cost of the HIV test, the lifetime costs of the treatment of an HIV infected child, and the overhead expenses.

Third, additional studies are needed to address various profiles of HIV infection in Oman, particularly in pregnant patients. This, with the elimination of dependent risk factors contributing to the emergence of HIV infection in Omani pregnant patients could tremendously help abort the growing problem of HIV/AIDS in the community.

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#### *Reply from the Author*

No reply from the Author.

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