Correspondence

Is routine antenatal screening for syphilis in Nigeria still justified clinically and economically?

To the Editor

I read the interesting Bukar et al's[1] study entitled: Is routine antenatal screening for syphilis in Nigeria still justified clinically and economically? Syphilis continues to be an important public health problem among pregnant women in sub-Saharan Africa with prevalence rates as high as 17%.[2] Pregnant women are a critical population to be screened and to prevent the devastating consequences of infection to their unborn children. Although screening and appropriate treatment of infected pregnant can prevent fetal and maternal complications, traditional screening algorithms requiring multiple tests have proven to be difficult to implement in resource-poor settings.[3] Despite the data stated by Bukar et al,[1] their question on the clinical and economic justification of routine antenatal screening for syphilis among Nigerian pregnant women is still difficult to be answered for the following 3 reasons:

First, Bukar et al[1] contemplated a retrospective hospital-based study. Limited access to antenatal healthcare services and traditional home deliveries, particularly for those residing in far districts are the usual scenario in many African countries, including Nigeria. This means that a substantial number of Nigerian pregnant with potential syphilis had escaped medical supervision and opportunities for conducting serological screening for syphilis, therefore, they could not be included in the Bukar et al's[1] study. Although it is expensive to perform and practically a little bit difficult, a community-based study is a better alternative and could give a better idea on the exact seropositive prevalence of syphilis among Nigeria's pregnant women and guide health policy.

Second, Bukar et al[1] stated in their retrospective study that the venereal disease research laboratory (VDRL) test was initially performed as a screening tool for syphilis to be followed by *Treponema pallidum (T. pallidum)* hemagglutination assay (TPHA) as a confirmatory test in those with positive VDRL test. The role of VDRL test as a screening tool for syphilis has been recently revised. It may, under certain circumstances, yield positive results in patients not infected with *T. pallidum*, a phenomenon referred to as a biological false positive (BFP) VDRL test. In an Austrian study[4] performed on 514,940 blood samples obtained from patients to determine the frequency of BFP tests, the seroprevalence for syphilis was 1.77% as determined by a positive TPHA test. Of the patients reactive in the TPHA test, 61.2% were negative in the VDRL test. With regard to reactivity in VDRL testing, 0.92% of the study population were positive, of whom 26% were BFP. The BFP reactivity was found in 0.24% of all patients. The proportion might be even higher, as reactivity in the VDRL at 1:0 and 1:2 dilutions without a positive TPHA test was not reported. The high proportion of BFP of all VDRL reactors renders the use of the VDRL as a screening procedure debatable. Two serological tests are now available that yield high sensitivity and specificity to be adopted as a screening tool for syphilis instead of VDRL test. The first is the particle gel immunoassay (PaGIA) using recombinant treponemal antigens TpN15, TpN17, and TpN47, which showed excellent sensitivity (94%), positive predictive value (100%), and negative predictive value (89.5%). No false-positive results were found too. The advantages of the PaGIA include the fast reaction time of only 20 minutes and the simplicity of the procedure with minimal technical equipment.[5] The second is anti-TP latex agglutination immunoassay (TP-LAIA) that showed high specificity, 0.64% false positive results in comparison with 13.5% by VDRL method. Its sensitivity was also significantly higher.[6] On the other hand, the confirmation of syphilis in seronegative studied pregnant women by TPHA test is known to be debatable. This means that considerable numbers of seronegative pregnant women who are index cases might be missed by the serological protocol adopted in Bukar et al's[1] study. Molecular detection of *T. pallidum* by polymerase chain reaction remains the most specific and solid diagnostic tool. Limited health resources in many African countries, including Nigeria, definitely halts the clinical application of these advanced laboratory test to diagnose syphilis.

Third, certain conditions are documented to immunologically cross-react with serological tests used to diagnose syphilis. These include the following: 1. The non-venereal treponematoses namely, yaws, endemic syphilis, and pinta constitute a major health concern for many third world countries, including Nigeria. These diseases are caused by an organism that is morphologically and antigenically identical to the causative agent of the venereal syphilis, *T. pallidum*. Therefore, immunological cross-reactivity between *T. pallidum* antigens with these treponematoses is feasible. 2. Human immunodeficiency virus (HIV) infection still represents an important health burden in Nigeria, particularly among non-booked antenatal pregnant women. Serological tests for syphilis might sero-revert in patients with positive HIV infection. Thus, a non-reactive serology does not exclude a past syphilis infection in such patients. I wonder whether the studied pregnant women in Bukar et al's[1] study were

concomitantly screened for HIV infection during their antenatal booking as the interpretation of serological tests for syphilis might be confounded by the concomitant HIV infection. 3. Diabetes mellitus, which is frequently associated with adverse pregnancy outcomes if not adequately managed, is still a significant health problem among Nigerian pregnant women. False-positive treponemal serology is not rare in diabetic patients.

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Reply from the Author

No reply was received from the Author.

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