Syphilis in pregnancy – prevalence at different levels of health care in Durban

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To the Editor: Syphilis in pregnancy is a significant cause of perinatal mortality and morbidity in South Africa.[1] Yet, despite universal screening for all antenatal women, it has been reported to be endemic in KwaZulu-Natal. However, such reports are based mainly on figures from regional and tertiary hospitals and therefore may not be a true reflection of the prevalence of syphilis in the pregnant population. In a recent study performed at King Edward VIII Hospital, Patel *et al*.[2] reported a prevalence of 9%.[2] Reports from sexually transmitted disease clinics quote figures of 21% among pregnant women.[3] The latter figures are probably biased as they pertain to a specific group with symptoms and signs. The aim of our study was to establish the prevalence of syphilis at antenatal clinics, at different levels of health care in KwaZulu-Natal, in the hope that it may give a broader population-based perspective of the prevalence in the metropolitan area.

Method

The following sites representing different levels of health care were chosen: KwaMashu Polyclinic (KMPC) (community clinic), Addington Hospital (district level), Mahatma Gandhi Hospital (MGH) (regional level), and King Edward VIII Hospital (KEH) (tertiary level). A community clinic was defined as an institution at which antenatal care and delivery are provided by midwives for low-risk pregnant women. A district hospital is usually staffed by midwives and medical officers. A regional hospital usually has specialist staff, while a tertiary hospital has subspecialist disciplines and attends to high-risk patients.

All patients were screened for syphilis using the rapid plasma reagent (RPR) test during the study period. In addition, HIV serology was performed following pre-test counselling. Post-test counselling was provided to all those who were HIV antibody-positive.

An RPR result of ≥ 1:8 titres was regarded as an index of recent infection. The TPHA (*Treponema pallidum* haemagglutination assay), a specific test for syphilis, was performed in cases where the result was ≤ 1:4 titres to exclude false-positives.

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HIV testing was done using two separate rapid test bedside tests, viz. the *Determine HIV 1/2* (Abbott Laboratories, Ill., USA) and SmartCheck (World Diagnostics, USA) kits. If both tests were positive, then the test was indicative of HIV; if there was a discrepancy between the tests, a confirmatory enzyme-linked immunosorbent assay (ELISA) was performed in the virology laboratory.

Results

The clinical details of 1 856 antenatal patients in the various clinics are shown in Table I.

The overall mean age was 26 years (range 14 - 44 years) and mean parity 1 (range 0 - 8). The overall prevalence of syphilis was 3.9%. The prevalence of syphilis was highest at MGH (6.5%) and lowest at KEH (2%).

The overall incidence of HIV was 26% (N = 474) in the study. The mean age of the positive patients was 28 years (range 14 - 43 years).

Discussion

The sites in our study were chosen to reflect both high-risk and low-risk pregnant populations and to estimate an overall prevalence rate for syphilis in an urban setting. This approach may be open to criticism as most stillbirths and perinatal losses (some of which could be due to syphilis) occur at tertiary levels of health care. Yet the prevalence rates of syphilis were similar at all levels of health care.

This study shows that the overall prevalence of syphilis was 3.9%. This figure is surprising because previous studies from Durban within the last 10 years showed a prevalence of 9 - 15%.[2,4]

The dramatic fall in the incidence of syphilis in a short period of time may reflect a positive outcome resulting from the promotion of universal testing at all levels of health care by the Department of Health. However, there is no reason to be complacent as a figure of 4% is still too high. Figures from affluent societies are now < 1% and the economic costs of universal screening are being debated in these countries. Our study did not follow up the obstetric or neonatal outcome and no contact tracing and treatment of the partner was done. From a public health point of view it is important to trace and treat all contacts to eradicate an endemic condition.

Low prevalence rates may lead to a change in the attitude of the health care profession regarding the seriousness of this

Table I. Clinical details

	Addington Hospital	King Edward VIII Hospital	KwaMashu Polyclinic	Mahatma Gandhi Hospital	Overall figures
Total recruited per site (*N*)	500	500	500	356	1 856
Mean age (yrs)	26 (13 - 43)	26 (15 - 45)	25 (14 - 42)	26 (14 - 44)	
Mean parity (*N*)	1 (0 - 6)	1 (0 - 10)	1 (0 - 6)	2 (0 - 7)	
Mean gestation (wks)	22 (6 - 39)	24 (6 - 40)	24 (8 - 36)	25 (12 - 35)	
HIV status (*N* (%))					
Positive	109 (21.8)	140 (28.0)	137 (27.4)	88 (24.7)	474 (25.5)
Negative	203 (40.6)	205 (41.0)	186 (37.2)	116 (32.6)	710 (38.3)
Unknown	188 (37.6)	155 (31.0)	177 (35.4)	152 (43.0)	672 (36.2)
RPR test results (*N* (%))					
Reactive	15 (3)	10 (2)	26 (5.2)	23 (6.5)	74 (3.9)
Non-reactive	476 (95.2)	476 (95.2)	473 (94.6)	323 (90.7)	1 748 (94.2)
Unknown	9 (1.8)	14 (2.8)	1 (0.2)	10 (2.8)	34 (1.8)
TPHA test results (*N* (%))					
Reactive	6 (1.2)	2 (0.4)	5 (1)	13 (2.65)	26 (1.4)
Treatment					
Before delivery	4 (26.7%)	10 (100%)	21 (80.7%)	17 (74%)	52 (70.3%)
Three doses before delivery	2 (13.3%)	10(100%)	20 (76.9%)	16 (69.6%)	48 (64.9%)

Reactive syphilis = RPR titres ≥ 1:8.
RPR = rapid plasma reagent test; TPHA = *Treponema pallidum* haemagglutination assay.

condition. There are anecdotal reports of patients not being screened in the antenatal period. In our study 9 patients at Addington Hospital, for example, had no RPR results. The promotion of universal screening must be maintained in South Africa.

The fall in the prevalence rate of syphilis may also be due to the population-based advertising campaign by the National Department of Health on the dangers of sexually transmitted infections and the promotion of safe sexual practices.

The prevalence rates of syphilis in this study ranged from 2% at KEH and 3% at Addington, to 5% and 6% at KMPC and MGH respectively. The latter two institutions are in the same area and the polyclinic refers patients to MGH. The higher figures at these institutions may be reflective of a more mobile and lower socio-economic population than the population attending Addington and KEH.

Our figures show a disparity between those who were HIV-positive and syphilis serology-positive. One would have expected a higher prevalence of HIV in those who were infected with syphilis. Reasons for this disparity are difficult to explain and there is a need for more in-depth research regarding the laboratory technique used to test for syphilis, as the immune-suppressed state may have a 'prozone effect' on serology and result in false-positive tests.

In conclusion, it is good to note a decreasing trend in the prevalence of syphilis, but public health education in the field of sexually transmitted diseases must be maintained and improved.

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