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Original Research Article

Retrospective analysis of burden of maternal syphilis and the outcome in the fetus in a tertiary care centre

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ABSTRACT

Background: Syphilis in pregnancy has its own significance with regards to the outcome of pregnancy. In the meanwhile, it also reflects the effectiveness of health system in the community.
Methods: A retrospective study was carried out in a tertiary care centre in Chennai between January 2014 and July 2015 to determine the seroprevalence of syphilis in pregnant women. A total of 4423 ANC mother attending the hospital were included in the study.
Results: Of the 4423 cases studied, 7 cases were found to be positive for RPR accounting to the prevalence of 0.15%. One mother was symptomatic, presenting with condyloma lata. TPHA was positive in 2 cases (28.5%) Most common association was with HIV infection, 2/7 (28.5%). All the RPR positive patients were treated with tablet erythromycin 500 mg qid × 14 days. Epidose for the partner was given. The outcome was uneventful except for one. A single case of congenital syphilis was reported.
Conclusions: Though the prevalence of RPR positive in routine screening is less, the outcome of single congenital syphilis is worrisome. To conclude, although the prevalence of syphilis (0.1%) is low, routine screening of asymptomatic ante natal women is recommended to reduce the incidence of congenital syphilis & perinatal complications and it is always better to treat the ANC mothers with syphilis with Penicillin, preferably with a second dose also.

Keywords: Maternal Syphilis, Penicillin, Congenital syphilis

INTRODUCTION

Syphilis, a chronic infectious sexually transmitted disease caused by *Treponema pallidum sp pallidum*, is a disease of great historical importance and is characterized by a myriad of presentations. It's a immune mediated process, the primary pathological process being vasculitis, presents itself in ways that it has earned the name 'The Great Imposter' and has prevailed in spite of change in the trends of STDs.[1,2] Syphilis in pregnancy has its own significance with regard to outcome on the baby, which is of major concern. Pregnancy as such does not have any change in the clinical course of the disease and the transmission is clinical stage independent.[3] Maternal syphilis is associated with obstetric complications such as hydraminios, abortion and preterm delivery and fetal complications such as non-immune hydrops, prematurity, fetal distress and still birth.[4] In 2012 WHO suggested replacement of the term congenital syphilis with "mother to child transmission of syphilis" to stress its importance.[5] It also reflects the effectiveness of health care system in the community.[6] All antenatal women should be screened

serologically in the 1st and 3rd trimester as the risk of fetal infection is still significant.[7] So we conducted a study to know the prevalence of maternal syphilis and its impact on the baby.

METHODS

A retrospective observational study, conducted between January 2014–August 2015 at Department of DVL, Stanley Medical College, Chennai. Study included all pregnant women attending the antenatal clinic in the hospital. The sample size was 4423 during the study period. All antenatal mothers who had been screened by rapid plasma reagin test (RPR) test for syphilis were included in the study. The RPR positive results had been confirmed by specific treponema pallidum hemagglutination test (TPHA). The partners of the positive mothers were also investigated. Mothers who were both RPR and TPHA positive were thoroughly examined and were given appropriate treatment along with proper counselling. All mothers had been followed up till the outcome. Results will be tabulated; frequencies and proportions will be calculated for qualitative data.

RESULTS

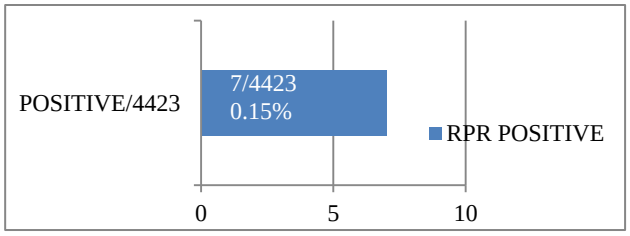

Figure 1: Total RPR positive.

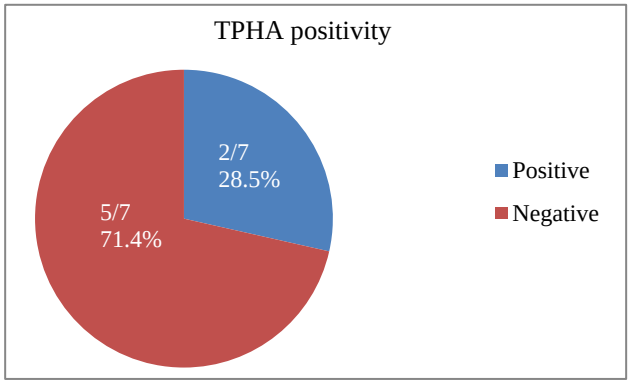

Figure 2: Symptomatic cases.

Of the 4423 cases studied, 7 cases were found to be positive for RPR (Figure 1) accounting to the prevalence of 0.15%. On further detailed study of the RPR positive mother, the following results were observed. The Mean age groups of the above mothers were 20-31 years. 71.4% were educated upto secondary level. All mothers were married of which 85.7% were house wives. All antenatal mothers denied extra marital contact except one. Four of them were primi and one mother presented with bad obstetric history. Most common association was HIV infection, 2/7 (28.5%). On examination 85% of mothers were asymptomatic (latent stage). One mother was symptomatic (Figure 2), presenting with condyloma lata (early stage). The time of diagnosis was around *2nd* and *3rd* trimesters. 57.1% of the cases were positive in low dilution, the remaining being positive in high dilution. TPHA was positive in 2 cases (28.5%). Out of 7 only 2 were true positive and others were taken as biological false positive (Figure 3). Since at that time, Penicillin had not been available both in the government and from open access purchase, all the RPR positive patients were treated with tablet erythromycin 500 mg qid × 14 days. Epidose for the partner had also been given. The outcome was uneventful except for one. A single case of congenital syphilis was reported (Figure 4). RPR of the child was positive in 1: 256 dilutions. The baby died in 4 days.

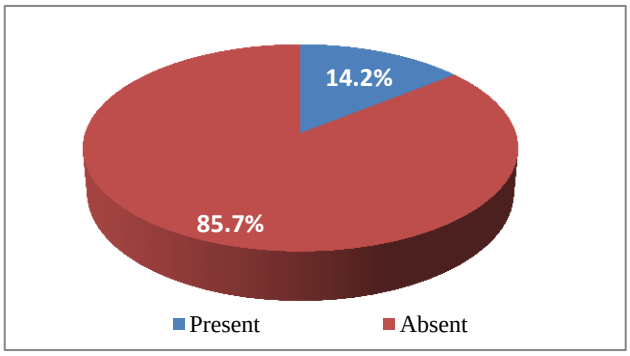

Figure 3: True positive.

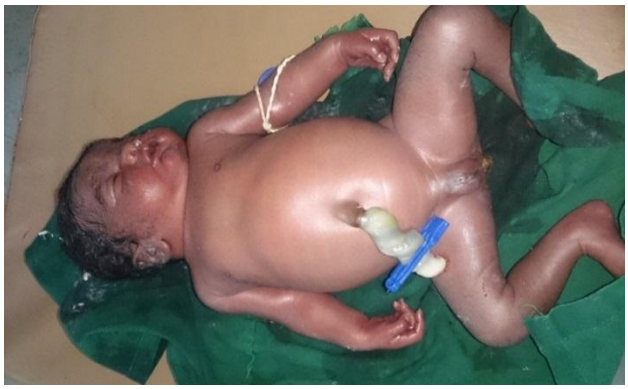

Figure 4: Congenital syphilis child.

DISCUSSION

Although the prevalence of RPR positive (0.1%) in routine screening is low similar to the studies done by Nair et al (0.36%), Chen et al (1.6%), Fatima et al (0.15%), the outcome of single congenital syphilis in spite of treatment is worrisome, implying the fact that the consequence of syphilis in mother is considerable.[8-10] This stresses the need for serological screening in pregnancy. Ideally screening must be done in both first

trimester and later stage of pregnancy. In routine RPR titre >1: 8 are considered high, but this cannot be taken so in pregnancy as even low titre is significant. In the same way, the risk of transmission also cannot be neglected in the late stages.

All seropositive pregnant women should be considered infected unless an adequate treatment has been given with proper medical records. All pregnant women with syphilis should be treated with penicillin. Some studies even recommend a second dose for pregnant women with early syphilis.[11-14] Treatment should be followed with a sonogram examination of fetus. Ultrasonogram should always be done before treatment so as to assess the outcome, as sonographic evidence of congenital syphilis is a sign of treatment failure.[15] Penicillin is undoubtedly the treatment of choice, even so some Studies have shown that even with penicillin there can be chance of treatment failure with secondary stage of maternal syphilis.[16] Treatment can be further complicated by development of Jarish-Herxheimer reaction.[17] Further studies have shown that there can be treatment failure in conditions such as high VDRL titre at treatment and delivery, early maternal stage of syphilis, the interval between treatment to delivery and delivery of infant less than 36 weeks of gestation.[18]

In short, there is no alternative to penicillin in pregnancy; desensitization to penicillin is the only option in pregnant women at present. Various trials have been done on this accord but remains to be proved. The drugs under trail are ceftriaxone for 10–14 days, azithromycin 2 g per oral, not to mention that tetracycline is contraindicated in pregnancy. However some studies have shown that neither erythromycin nor azithromycin cures maternal or congenital syphilis.[19]

Coming to our study, the reason for this outcome can be attributed to the non-usage of penicillin or early symptomatic stage of the disease in the mother or Short duration between treatment & delivery. Penicillin is the only effective antimicrobial which prevents maternal transmission to the fetus.[20] It is always better to treat ANC mothers with syphilis with penicillin as per NACO and WHO guidelines.

The elimination of congenital syphilis will only be possible when: 1. Early diagnosis is made a priority (1 trimester), 2. Adequate treatment of the women and their sexual partners is secured and if needed a second dose of penicillin have to be considered, 3. Creating awareness among reproductive age group, 4. Coordinated prenatal care and treatment, 5. At a minimum, serologic titres should be repeated at 28–32 weeks' gestation and at delivery, 6. Women at high risk for reinfection should be tested monthly. Although the prevalence rate seems very small, a new born death due to infectious cause is still preventable. Emphasis must be made that no ANC mother goes unscreened, positive cases treated and followed, all fetal death ≥20week s gestation investigated and all health care providers should be educated regarding the problem.

CONCLUSION

In a nutshell, though the incidence of syphilis has drastically reduced, its infectivity to the fetus remains high in case the pregnant mother is infected. Thus in the present scenario, the cornerstone of congenital syphilis management is antenatal screening and the treatment of mother with penicillin which is a cost effective approach. The clinician should be more vigilant as most cases are asymptomatic. In the mean while alternative innovative approach should also be sort out for better results. Moreover antenatal screening both before and after treatment is also mandatory.

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Ethical approval: The study was approved by the institutional ethics committee

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