



AN EVALUATION OF SYPHILIS DISEASE IN PREGNANT WOMEN OF ABU-GRAB PROVENCE, IRAQ

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ABSTRACT

Syphilis is a chronic bacterial sexually transmitted infection caused by the spirochaete called *Treponema pallidum*. It can also be transmitted by blood transfusion or vertically. The present study was carried out to diagnosis the syphilis infection during pregnancy. In this study 400 pregnant women were enrolled over eleven months from March 2012 to January 2013 serological methods including VDRL as screening test and TPHA as confirmatory test were used. Venereal disease research laboratory (VDRL) reveals that out of 400 pregnant women twelve cases (3%) were positive, out of 12 samples were positive by VDRL nine (75%) were positive by TPHA. Congenitally transmissible syphilis continues to occur among pregnant women in the Iraq Cases would be missed and stillbirths and congenitally infected babies would occur if antenatal screening was not achieved.

Keywords: *Treponema pallidum* haemagglutination test (TPHA), venereal disease research laboratory (VDRL).

INTRODUCTION

Syphilis is primarily a sexually transmitted disease (STD) caused by the bacteria *Treponema pallidum* (Genc and Ledger, 2000). *Treponema pallidum* has a characteristic helical shape, and is a member of the Spirochete family of bacteria. Sometimes Syphilis infection can be transmitted by blood transfusion or transmitted directly from the mother to a baby during pregnancy (Sanches and Wendel, 1997).

Vasculitis which results from infection with *T. pallidum* underpins the various manifestations of syphilis. At the site of inoculation a papule appears which rapidly ulcerates to form a chancre (Correa, 1994). The organisms multiply at the site of the ulcer and spread to the local lymph nodes. Subsequently, the treponemes are disseminated haematogenously, most of the organisms are destroyed, with and, along with immune complexes, and it's responsible for the manifestations of secondary syphilis, only small foci remaining in the spleen and lymph nodes. These foci containing organisms are responsible for the persistence of serological markers of infection and these remaining treponemes after many years may lead to the manifestations of tertiary, neurological and cardiovascular syphilis (Mascola *et al.*, 1984). Immunosuppressive of the host is the main reason for the tertiary stage of this disease, which is characterized by a granulomatous reaction to very few

organisms resulting from a delayed-type hypersensitivity response (Tripathy and Mishra, 2010). Congenitally infected baby stillbirth, miscarriage usually results from syphilis infectious during pregnancy (Saloojee *et al.*, 2004). In early latent (asymptomatic) syphilis the risk of vertical transmission remains about 30% to 60%. But risk of transmission diminishes as maternal syphilis advances (Buff *et al.*, 2007). Maternal infection is, however, entirely treatable with penicillin which also prevents vertical transmission and can diagnoses by serological methods (Mullick *et al.*, 2004) during the first two years of infection transplacental transmission is usually occurs but it is rare after four years, although cases of transmission up to 10 years after acquisition of syphilis have been reported (Yang *et al.*, 2009).

About a third of babies born to mothers with early syphilis are born without infection and a third with congenital syphilis; a third of pregnancies will result in stillbirth or early-trimester miscarriage. Between half a million and a million cases of congenital syphilis occur each year worldwide, and in some poor countries up to a fifth of neonatal mortality is directly attributable to syphilis (Ferguson and Varnado, 2004). Congenital syphilis is classified as either early or late congenital syphilis depending on whether it presents before or after 2 years of age, the prognosis is particularly poor if symptoms of syphilis are present in the first few weeks after birth (Gros *et al.*, 2013). Congenital syphilis can be easily prevented by antenatal screening for syphilis and treatment during pregnancy (Ray, 1995).

MATERIALS AND METHODS

This study was carried out on 400 unscreened for syphilis pregnant women admitted in labour or because of abortion to the department of obstetrics and Gynecology of Abu-grab Hospital in Baghdad, Iraq during March 2012 to January 2013, from 400 patients admitted during the period of this study, 270 patients were in labour 90 of those were primiparous women, 180 were multiparous the rest (130) were cases of abortion. Clinical details at presentation for mothers and infants, the socioeconomic status and relevant obstetric, prenatal history of each patient were records; all patients were investigated for clinical signs of syphilis. Sera were collected at the first visit and stored in aliquots at -20°C till analyzed. Two serological test were used in this study, in first one all women screened for syphilis with a non treponemal test venereal disease research laboratory [VDRL], then reactive sera were confirmed by the *Treponema pallidum* haemagglutination test (TPHA) according to manufactures instructions.

RESULTS AND DISCUSSION

The total number of patients with presumptive diagnosis of syphilis was 400 woman were collected over a period of one years and included in this study, the patients categories in three groups 90 (22.5 %) cases were Primiparous, 180 (45%) multiparous and 130 (32.5%) aborted. The results of serological test shown out of 400 patients only 12 (3%) were VDRL positive, three (25%) primiparous women, 7 (58.33%) multiparous and 2(16.66%) aborted table 1 from those VDRL positive cases 10 (83.33%) were TPHA positive and two (16.66%) cases were negative TPHA. from those TPHA positive two women in aborted status and remainder (7) in labour. The average age for each group was recorded and compared with TPHA positive cases of the same group table 2. The average birth –weight in primiparous and multiparous was estimated and compared in the TPHA positive and TPHA negative group. The results are shown in table 3, the average birth-weight in primiparous with TPHA was lower than those with negative TPHA. Titter of TPHA were estimated and to be found highly with women in stillbirth labour then in aborted women and less titter in premature labour table 4. The distributions of patients according to educations parameters in positive cases shown in table 5.

Syphilis is a chronic disease, and *T. pallidum* only known natural host is the human. Syphilis is acquired by direct contact, usually sexual, with active primary or secondary lesions. Infection also occurs when organisms cross the placenta to infect the fetus in a pregnant women (Cheng,

2008).The results of this study shown that syphilis reemergence as a major problem in suburban area with high risk of pregnancy loss, most of our patients infected with syphilis were multiparous women this could be due to that consecutive pregnancy and labour lead to increased susceptibility to infection as a result to depressed the immune system and increase exposure to contaminants medical material infected with *Treponema pallidum* (Liu *et al.*, 2011). Result of current study demonstrated that the age of patients rang of (19-30) years, which is in agreement with other previous study who found increase incidence of syphilis among reproductive age group (Arnold and Ford 2000; Lan and Nathali, 2008). Results show the VDRL is acceptable as the initial screening test for syphilis diagnosis, Treponemal serology (TPHA) is used to confirm nontreponemal tests (VDRL) because of false-positive test results in VDRL occur (Zhu *et al.*, 2010) the results of this study show that average birth-weight in labourers with positive TPHA was lower than those with Negative cases such reduction in the body weight could be due to complication of congenital syphilis such as cardiovascular complications, neurosyphilis (Sriparna and Ashok, 2013).The present result demonstrated that stillbirth was observed in five pregnant women with high titter active syphilis followed by three premature labour and two aborted, this result in agreements with other previous study done by Woods and Jennifer (2010) which found the stillbirth is the major adverse outcomes of syphilis during pregnancy.

Table 1. Distributions of VDRL positive cases in the three main groups of patients.

Group of patients	Number admitted	VDRL positive	%
Primiparous	90	3	22.5%
Multiparous	180	7	45%
Abortion	130	2	32.5%
Total	400	12	100%

Table 2. Average age in TPHA Positive and negative.

Group of patients	Average age in TPHA positive	Average age in TPHA negative
Primiparous	19 years	20 years
Multiparous	22.6 years	30 years
Abortion	25 years	28.6 years

Table 3. Comparison of average birth –weight in negative and positive TPHA.

Group of patients	Average birth-weight in negative TPHA	Average birth-weight in positive TPHA
Labour Primiparous	5.19 kg	2.12
Labour Multiparous	4.32 kg	3.5

Table 4. Outcome of pregnancy status comparison to TPHA titter.

Outcome of pregnancy	Number	Titter of TPHA
Aborted	2	1280
Premature labour	3	2560
Stillbirth	5	10240

Table 5. Education parameter in TPHA Positive women.

Educated parameter	Number	%
Primary school	3	33.33%
Highly educated	zero	zero
Not educated	7	66.66%

CONCLUSION

Syphilis continues to occur among pregnant women in sub-urban area with catastrophic effect so the women need to be tested for syphilis as soon as the pregnancy is detected and again in the last trimester.

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