



VDRL, TPHA, Immunoglobulin in Aborted, Non Aborted and Multipart Woman's In Baghdad Governorate

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Summary

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Background : Syphilis disease remain as a problem especially in developing countries. It can be detected by serological tests and the infection may affected the immunoglobulins concentration and may cause spontaneous abortion.

Objectives To study TPHA,VDRL tests in aborted non aborted multipartner and infertile females with the estimation of IgG,IgM,IgA.

Methods Tow hundred and seventy three females were included in this study attending infertility department AL-ELWIYA hospital, AL-JARA private hospital, central public health laboratory and STD clinics, to whom VDRL,TPHA AND immunoglobulin concentration were done.

Results Females were of three age groups, <20;20 -39 and ?40 years. Single and repeated abortions were 44.9%,55.1% respectively. Primary and secondary infertility were 55.6% and 44.4%. Higher abortions rate were in age group 20-39 years which represents 31.5% and 41.6% in single and repeated abortions. Primary and secondary infertility were high in the same age group which represents 42.6% and 4.7% of the total investigated females High percentages were see in multipartner females which constitutes 33.3% and 30% in accordance. In syphilis IgG mean values compared with normal range were 2371.5 and 2102.3 mg/dl. In age categories <20 and 20-39, which were higher than normal IgG concentration It doesn't seen any change in IgA mean values. More difference appeared in IgM mean values which were 326.5 and 317 mg/dl respectively which were higher than normal IgM value.

Conclutions Syphilis distributed largely among multipartner females than other aborted females. High abortions were noted in age group 20-39 years. TPHA is more reliable them VDRL test to detect syphilis infection IgG and IgM concentrations were higher than normal concentration with in age category 20-39. IgA is normal.

Key Words : Syphilis, VDRL, TPHA, Abortion Immunoglobulin Baghdad.

Introduction:

Treponema pallidum , the causative agent of syphilis disease , remain as a problem especially in developing countries , because of the serious sequelae and the risk of congenital infections (1) This bacteria enters the body through minute abrasions on the mucous membranes to be separated through sexual contact and vertical separation via transplacental infection of the fetus (2) . The untreated syphilis results in the followings

- Spontaneous abortions in second trimester of pregnancy (20%)
- The fetus may die at later gestational age resulting in a stillbirth approximately 30%
- Delivery of low birth weight infants.
- Congenital syphilis
- Manifests signs of infection with six months after delivery (3)(WHO,1991).

Serological tests for syphilis were divided into non specific and specific tests for detection of antibodies in patients serum.

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Venereal disease research laboratories (VDRI) test named non specific test because it depends on antigens of non treponemal in origin, but are from extract of ant lipid . IgG and IgM formed in the patient in response to lipoidal material released from cells damaged by the infection (2,4). Treponema pallidum haemagglutination assay (TPHA) called specific test , because it used treponemal antigen extracted from Treponema pallidum . This test used to confirm that a positive result with non specific is truly due to syphilis (5) .

This study deals with serological investigations of syphilis (VDRL , TPHA) in many groups of females (aborted non aborted and multipartner) including detection of immunoglobulin concentration in each group.

Material And Method:

Patients

The study was carried out on 273 females attending general gynecological , obstetric , family planning and sexually transmitted Diseases (STD) clinics during the period from August 1999 to June 2000. It includes 173 females attending the obstetric and gynecologic departments in three major hospitals

1. Infertility department / AL-Eluiya hospital.
2. AL-Jarah private hospital .
3. Central public health laboratory and STD clinic.

females were divided into three major groups , the first group (No.= 89) was females with history of abortions (40 single abortions and 49 repeated abortions) . The second group (No.=54) was infertile females , which were separated into primary infertility (No.=30) and secondary infertility (No.=24),while the third group (No.=30) include multipartner females and one hundred fertile females with no abortions were selected from

Those females have no gynecological or obstetric problems (abortions or infertility) , they represented healthy females with same range of ages with patients sample which attending the clinics for planning their families only. The women's throughout this study were of different ages ranged from 16-45 years.

Blood specimens

A peripheral venous blood samples (5ml) were taken from each females. The serum was separated by centrifugation and was used for serological and immunological tests.

Serological tests

VDRL test : Venereal disease research laboratories test was performed according to VDRL kit from Randox company (England) by using carbon antigen .

1. Family planning unit / AL-Eluiya hospital.
2. Family planning unit / Baghdad teaching hospital .

TPHA test

Treponema pallidum haemagglutination antigen test was performed according to TPHA kit from syphagen (Spain).

Immunological tests

Quantitative determination of immunoglobulins by using kit intended for the quantitative method for human immunoglobulins : IgG , IgA and IgM , according to single radial immunodiffusion (RID) kit from Sanofi (France) .

Results:

Females were distributed according to their ages into three categories (<20;20-39 and >_40 years) , which were suffered from problems in bearing or ability to bear. Single and repeated abortions were 44.9% and 55.1% , while primary and secondary infertility were 55.6% and 44.4% respectively. The higher abortions rate were reported with in age group (20-39) years which represents 31.5% and 41.6% in single and repeated abortions. Primary and secondary infertility were also high in the same age group which represents 42.6% and 33.3% respectively as show in table(1). *Treponema pallidum* infections were detected by VDRL and TPHA as illustrated by table(2). It was observed that

VDRL and TPHA were positive in 5.8% and 4.7% of the total investigated females, while higher percentages were noted in multipartner females which constitutes 33.3% and 30% respectively.

Table (1): The Incidence of Abortion and Infertility Among Age Categories of the Patients.

Age Categories(y ears)	Single NO.(%)	Abortions Repeated NO.(%)	Primary NO.(%)	Infertility Secondary NO.(%)
<20	7(7.9)	8(9)	2(3.7)	5(9.3)
20-39	28(31.5)	37(41.6)	23(42.6)	18(33.3)
>40	5(5.6)	4(4.5)	5(9.3)	1(1.9)
Total(%)	40(44.9)	49(55.1)	30(55.6)	24(44.4)
Final Total(%)	89(100)		54(100)	

Table(2):Serological Tests of Females Groups.

Serological Test	Abortion NO.=89	Infertility NO.=54	Multipartner NO.=30	Fertility with no abortion NO =100	Total NO.=273
	NO (%)	NO.(%)	NO.(%)	NO.(%)	NO.(%)
VDRL	2(2.2)	2(3.7)	9(30)	2 (2)	16(5.8)
TPHA	1(1.1)	1(1.9)	9(30)	2 (2)	13(4.7)

Immunoprecipit in ring diameters of Igs were measured and converted to concentrations by using single radial immunodiffusion test.

In females with syphilis IgG mean values were 2371.5 and 2102.3 mg/dl with in age categories <20 and 20- 39 years respectively which were higher than IgG values in fertile females with no absorptions.

No elevation of IgA was noted in females with syphilis and females with no abortions.

More differences appeared in IgM mean values which were 326.5 and 317 mg/dl respectively which were higher than normal IgM values in fertile females with no abortions. It had been noted that Igs Mean were high in age category <20 years followed by age category 20 - 39 years as shown in table (3).

Table (3): Immunoglobulins Mean Values (mg/dl) in Females with Syphilis and Fertile Females with No Abortions Females.

Age Categories (years)	Females with Syphilis			Fertile Females with No Abortion		
	IgG	IgA	IgM	IgG	IgA	IgM
<20	2371.5	422.3	326.5	1252.8	152.8	161.8
20-39	2102.3	335.7	317	1604.6	245.6	195.1
>40				1512.8	282.2	183.4

Total Mean	2236.9	379	321.8	1456.7	226.9	180.1
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Normal Immunoglobulin Value (mg/dl)

IgG = 844- 1912 IgA = 68 -423 IgM = 50 -196

Discussions:

The incidence of *Treponema pallidum* infection which was detected by VDRL and TPHA, appeared different with in each test. The specificity and sensitivity of the antibody tests play a contributing factory that caused variation in the results (5).

The more specific TPHA test appeared with high prevalence rate in multipartner than other groups which was 30%. This result was lower than that obtained by other workers (6) which was 52%.

Same authors (7) reported that sex with prostitutes, extramarital sex years of sexual activity, occupation, religion, uncircumcised status and unprotected sex with prostitute play an important role of increasing *Treponema pallidum* infections, while the prevalence was low in aborted and other groups. This result was lower than that reported by WHO(8) which indicated that seroprevalence in 10% for spontaneous abortions of prenatal deaths and syphilitic infants in sub-saharan of Africa and South America . Also it was found that 3% of pregnant Vietnamese in Hongkong had syphilis(9).

Reinfection is not prevent by high levels of specific antibody in the secretion or active cellular immunity. The synthesis of specific IgM antibodies in the first post infection is important in syphilis, this Ig is present in patient in the early syphilis, and may also be found during the laten period and in patient with late disease(5).

IgG and IgM mean values were high in age category (20-39), followed by age category >_40 than other age category, which IgA mean values were high in age category ? 40 which was more than other age categories.

References:

- 1-Duthie,S.J.;Ven,D.and Mrcog,N. Routine serological screening for syphilis during pregnancy. Aust J.Obstet.Gynecol.1990;30:29-31.
- 2-Mims,C.;Playfair, J. ; Roitt , I.; Wakelin, D. and Williams, R. Medical Microbiology, 2nd Ed. Mos by. USA. 1998 ; pp: 229-239.
- 3-WHO.Reported of a WHO consultation. Maternal and perinatal infections. Geneva. 1991 ;10: 99-104.
- 4-Davies, A. J. and Jephcott, A.E. Bacteriology of the genital tract : Medical bacteriology, apractical approach. Ed. Hamkey, B.M. and Lemis, D.A. Oxford, Newyork.1989; PP: 71-88.
- 5-Van Dyck, E.V.; Meheus, A.Z. and Piot, P. laboratory diagnosis of sexually transmitted diseases. World Health Organisation.1999; PP: 1-21, 36-42,70-75.
- 6-Behets , F. M.; Bralhmaite, A.R. ;Hylton-Kong . T. and Chen C.Y. Genital ulcers: Etiology, clinical diagnosis and associated human immunodeficiency virus infection in Kingston, Jamaica. J. Clin. Infect. Dis. 1999; 28(5) 1086-90.
- 7-Rakmar, j.; Lavreys, L. ;Thompson, M.L.; Jackson , J. and Hassarali, S. Cofactors for the acquisition of HIV-1 among heterosexualmen. Prospective cohort study of trucking company morers in Kenya. J.AIDS.1999;13(5):607-

14.

8-WHO.Sexually transmitted disease including AIDS. World Health Organization regional office for the eastern Mediterranean. 1998;50: 1-2.

9-Duthies, S.J.; Hobson , D. and Tait, I.A. Morbidity affect termination of pregnancy in the first trimester. J.Geniton.Med. 1987; 63:182-87.