ROLE OF TREPONEMA PALLIDUM HAEMAGGLUTINATION TEST (TPHA) IN SCREENING FOR SYPHILIS AT ANTENATAL CLINICS

by

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SUMMARY

A VDRL reactive serum should be 8 dils or more to be considered positive for syphilis. Most of our antenatal cases had titres below this. TPHA, a specific test for syphilis, was performed on all VDRL reactive sera and 50 out of the 53 VDRL reactive sera (94.3%) werd found to be positive by TPHA test.

It is recommended that in antenatal clinics even low titre VDRL reactive sera should be taken as due to syphilis, rather than as biological false positive reactions and adequate treatment should be given to forestall foetal wastage, neonatal mortality and infant morbidity due to congenital syphilis.

Introduction

In many antenatal clinics it has now become standard practice to request for VDRL (Venereal Disease Research Laboratory) test as part of routine antenatal workup. By this policy many cases of syphilis—active, latent or inapparent are detected and treated with the result that the number of infants born with congenital syphilis are a rarerity in these centres. But where this test is not done congenital syphilis is still a serious disease resulting in foetal wastage, neonatal mortality and infant morbidity. (W.H.O. Tehnical Report 1982).

The interpretation of the VDRL report is far from easy. In the past a confirmed VDRL titre of 8 dils or above was widely taken as indicating a need for treatment. We undertook this investigation to study the specificity of VDRL reactions by performing a specific test, Treponema Pallidum HaemAgglutinnation (TPHA), on VDRL reactive sera.

Material and Methods

Sera from 1836 pregnant women attending the antenatal clinics of the J.N. Medical College Hospital were tested for reagenic antibodies by the slide flocculation VDRL test (Centre for Diagnosis for Early Syphilis 1979). Fifty three of these sera, reactive by the VDRL test were tested for the presence of antisyphilitic antibodies by TPHA test using Syfhatest Kit (Wellcome Diagnostics, UK). Samples were 1 in 20 for the TPHA test. 25 ul of each sample was dispensed in two wells of a flexible 'U'

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bottom microtitre plate. Into the first row of wells 25 ul of turkey erythrocytes coated with sonicated *Treponema pallidum* antigen was added. Into the the second row of wells 25 ul of turkey cells alone were added to serve as controls. The contents were mixed by tapping all four sides of the plate. The plate was then covered and left undisturbed over the reading mirror for two hours.

The results were read by comparison of the sedimentation pattern in the test wells with that in the control wells. A positive reaction was indicated by complete or partial agglutination in the test wells resulting in a 'carpet' settling pattern while the control wells showed a 'button' settling pattern.

All the 53 pregnant mothers showing reactive VDRL reaction were given adequate appropriate treatment (Nath and Ranganathan 1978).

Observations

Table shows the VDRL titre of 53 reactive patients from amongst the 1836 antenatal cases. The VDRL titre in 35 (66%) cases were less than 8 dils. Out of these 53 VDRL reactive cases, 50 (94.3%) were also positive for the presence of specific anti-syphilitic antibodies by TPHA test. The 3 (5.6%) VDRL reactive cases in which TPHA test was negative had titre of 1 dil in 2 cases and 4 dils in 1 case.

Both VDRL and TPHA were negative when sera from these 3 cases was obtained and tested three months after the first samples.

Discussion

Slide flocculation test for the detection of reagenic antibodies using cardiolipin antigen in the VDRL test is most frequently used in the antenatal screening for syphilis. It is cheap and simple and its results are reliable. But it may be nonspecific in certain circumstances (Rajyalaxmi 1979) and so, in the past, it was generally held that titre of 8 dils or above required treatment.

From our study it is clear that there were 53 (2.8%) VDRL reactive cases from amongst the 1836 antenatal cases. Fifty (94.3%) of these 53 VDRL reactive sera were also positive by TPHA test. Of the 35 (66%) sera which had a titre less than 8 dils only 3 were negative by TPHA. A second sample obtained from these 3 cases three months after the first was negative by both VDRL and TPHA tests, indicating that only these three samples (5.6%) were false positive for syphilis by VDRL test. Another situation in which we can get VDRL reactive and TPHA negative results is in very early stage of primary infection. But in that case, TPHA would become positive and remain positive subsequently though VDRL titre may fall or become non-reactive due to early and adequate treatment.

TABLE I

Distribution of Cases According to VDRL & TPHA Positivity

	1	2	4	8	16	32	64	Total Cases
VDRL reactive cases	19	8	8	9	9	2	1	53
TPHA positive cases	17	8	7	9	9	2	1	50

From these observations we can recommend that VDRL test is an excellent screening test for syphilis. Its non-specificity can be minimized by using a specific test like TPHA cocomitantly or sequentially and that any VDRL reactive result should be taken as indicative of syphilitic infection requiring treatment. These cases should be treated ealry and adequately to forestall foetal wastage, neonatal mortality and infant morbidity due to congenital syphilis.

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