DETECTION OF PLASMA ANTIBODIES IN PATIENTS WITH BAD OBSTETRICAL HISTORY BY IHA AND LATEX AGGLUTINO TEST

by

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Toxoplasmosis is the infection caused by the obligate intracellular protozoan Toxoplasma gondii. Toxoplasmosis may be congenital, acquired or both. Clinically apparent infections, either in children or adults, may result from a newly contracted infection or from the reactivation of a latent infection originally either congenital or acquired. Diagnosis cannot be established in any form of the infection by clinical means alone, since signs or symptoms of toxoplasmosis may mimic those of a variety of other diseases. Approximately one third of the infants born to mothers who acquired toxoplasmosis during pregnancy will be infected. The incidence of congenital infection varies with the trimester during which the mother becomes infected, the lowest incidence is in the first trimester and the highest incidence is in the third trimester (Desmonts and Couvreur, 1974). Spontaneous abortion, prematurity or stillbirth may result. However, most infected newborns are asymptomatic at birth. Such infants may suffer no untoward sequelae of the infection or may go on to develop retinochroiditis, blindness, epilepsy and psychomotor or mental retardation months to years later (Alford *et al* 1974). Serological tests for specific toxoplasma antibodies are the primary method of diagnosis for most physicians (Anderson and Remington, 1975; Lynde, 1973).

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Material and Methods

Two hundred sera of patients attending the antenatal clinic with the diagnosis of bad obstetrical history i.e. abortion, prematurity, hydramnios and pelvic inflammation were studied. They were in the age group 20-30 years. IHA and latex agglutination tests was done. About 20 cord blood were tested. Some of these were for detection of syphilis and other for toxoplasma antibodies. The IHA test was done according to the technique described by Jacobs and Lunde (1957). Because of the wide variation in titres between laboratories, the IHA cannot supplant the dye test and indirect flouresecent antibody tests. Latex agglutino test, is a quick test. The Kit was imported from Institute Immunologicala Italiano. The test is based on rapid agglutination method and is read after 4 minutes. A comparison of IHA and rapid test was also done.

Observations

A titre of > 1:200 was taken as specific for toxoplasmosis (Chordi *et al* 1964). The blood samples which were positive in > 1:200 titres, were from patients who had delivered babies with congenital abnormalities like prematurity, postmaturity, anencephaly, stillbirths etc. Out of 200 cases the results were as follows:

Diagnosis	No. of cases	Titres				
		1:16	1:64	1:256	1:1024	1:4096
Total	200	5 (2.5%)	9 (4.5%)	30 (15%)	4 (2%)	4 (2%)
Abortions	25	—	—	2	—	—
Pre-eclampsia	10	—	—	2	—	—
Hydatidiform mole	15	—	1	4	—	2
Prematurity	30	—	2	2	—	—
BOH	60	4	4	11	—	—
Stiilbirths congenital malformations	30	1	2	4	2	2
Miscellaneous (post-maturity, IUD, transverse i.e. breech delivery hydramnios)	30	—	—	4	2	—
Cord blood	20	—	—	1	—	—

Incidence of antibodies in patients were found to be 19 per cent. All the tests which were positive by IHA were also positive Agglutino test. And in one case both the mother and cord blood were positive in high titres by both IHA and latex agglutino test.

Discussion

Rawal and Jhala (1956) studied the problem of toxoplasmosis in women in India. They found Feldman's dye test positive in 2 out of the 4 mothers whose children were positive for toxoplasma antibodies. Reports from other workers in India vary from 1.5 per cent to 21 per cent (Kalra, 1957; Rawal, 1959). Hingorani *et al* (1970) observed that toxoplasma was an etiological factor of abortion and still birth. There are reports of the role of toxoplasmosis in BOH and intrauterine deaths (Prakash, 1966; Bhatia *et al* 1974). Sabin in 1953, stated that since there is a high incidence of toxoplasma antibodies in normal adults and the mere presence of toxoplasma antibodies in any titre cannot constitute by itself a proof that an associated clinical condition of obscure etiology is caused by toxoplasmosis. Prakash and Choudhary (1969) reported an incidence of 26 per cent. They took a titre of > 1:200 as significant. Frenkel and Friedlander (1951) concluded from their study that premature births are common among women whose sera are positive against toxoplasmosis then in the general population. Chech and Jirovec (1960) stated that the parasite in the infected mother causes repeated premature births. Langer (1963) incriminated maternal toxoplasmosis as an outstanding cause for stillbirth by isolating toxoplasma gondii from the brain of 2 successive stillborn children.

Out of 20 cord blood samples tested, only 1 was positive in significant titre.

The mother of the same was also positive for toxoplasma antibodies. The test was repeated after treatment with 2 mercapto ethanol, the test showed a fall in titre showing that it was not passively acquired antibodies.

Latex agglutination test results were directly proportional to those of IHA. Hence, we recommend the use of latex agglutination test in routine use for suspected cases of toxoplasmosis.

Conclusions

Sera of 200 patients of bad obstetrical history attending the antenatal clinic of Medical College, Rohtak were examined for toxoplasma antibodies. Tests used were IHA and latex agglutino test. The incidence was found to be 19 per cent.

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References

1. Alford, C. A., Stagno, S., Reynolds, D. W.: Bull. New York Acad. Med. 50: 160, 1974.
2. Anderson, S. E. and Remington, J. S.: South Med. J. 68: 1433, 1975.
3. Bhatia, V. N., Meenakshi, K. and Aggarwal, S. C.: Indian J. Med. Res. 62: 1818, 1974.
4. Chech, A. and Jirovec, O.: Prog. Obstet. Gynec. 11: 41, 1960.
5. Chordi, A., Walls, K. W. and Kagan, A. G.: J. Immunol. 93: 1024, 1964.
6. Desmonts, G., Couvreur, J.: New Engl. J. Med. 290: 1110, 1974.
7. Frenkel, J. K. and Friedlander, S.: Public Health Service Publication, 141, 1951.
8. Hingorani, V., Prakash, O., Chaudhry, P. and Kamalam, T. S.: Indian J. Med. Res. 58: 967, 1970.
9. Jacob, L. and Lunde, M. N.: J. Parasitol. 47: 308, 1957.
10. Kalra, S. L.: Armed Forces Med. 13: 181, 1957.
11. Langer, H.: Obstet. Gynec. 21: 318, 1963.
12. Rawal, B. D., Jhala, H. I.: Child Health, 299-303, 1955. Idem. Jour. Obstet. Gynec. India, 7: 31, 1956.
13. Rawal, B. D.: Trans. Roy. Soc. Trop. Med. and Hyg. 53: 61, 1959.
14. Sabin, A. P.: 'De Sanctis' Advanc. Pediat. 1: 11, 1942. Idem Amer. Jour. Trop. Med. Hyg. 2: 360, 1953.
15. Prakash, O.: Indian J. Med. Res. 54: 437, 1966.
16. Prakash, O. and Choudhary, P.: Indian J. Med. Res. 57: 13, 1969.