

TOXOPLASMOSIS AMONG PREGNANT WOMEN IN NORTHERN PARTS OF PAKISTAN

Pages with reference to book, From 288 To 289

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ABSTRACT

Three hundred and twenty four serum samples, collected from different areas of Punjab, NWFP and Azad Kashmir, were screened for Toxo IgG and IgM antibody titres utilizing the Enzyme linked immunosorbant assay (ELISA). Of the total 149 (46%) samples were positive for IgG antibody. Seven (2.1%) showed titre greater than 130. Ninety sera (27.7%) were positive for IgM antibody, twenty six (8%) had a titre of more than 40 and the uncertain positive percentage was 19.7%. Infection rate was highest in Punjab (63%) followed by Azad Kashmir (48%) and NWFP (38%) (JPMA 40 : 288, 1990).

INTRODUCTION

Toxoplasmosis caused by *Toxoplasma gondii*, is a cosmopolitan and common infection afflicting nearly one third of the human race. This parasite lacks host specificity, and is found in primates, carnivores, rodents, birds and ungulates. Due to the abundant use of immunosuppressive drugs, the exacerbation of latent infections as well as high emergence of primary infections including toxoplasmosis is now on an increase. Toxoplasmosis is now recognised as an important medical and public health problem.

Whereas most infections are asymptomatic, overt disease causes blindness, congenital deformities, mental retardation and death¹. *T. gondii* is an obligate intracellular parasite. Individual cell is known as Tachyzoite. Its size is 4-7µm and is crescent in shape, found within the wandering macrophages, peritoneal, pleural and cerebral exudates and in circulating blood² as well as in lymphoid and parenchymal cells of liver, lungs, brain and other tissues. The parasite produces cysts which locate in lungs, heart and brain¹. Cystic form provides persistence of parasitism as chronic and latent infections. Various types of infections include congenital infection in utero, acquired encephalitis in older children, acute febrile illness in adults (pneumonia and pericarditis), lymphadenopathy, rash, fever and weakness and latent infection.³ The infection rates of toxoplasmosis are World-wide 2-93%, USA 10-70%, Saudi Arabia 31%, Iran 55%, India 18%, Eskimo 0%, Brazil 72%, Somalia 53%, Jordan 37%, Egypt 44%, Canada 41%, Taiwan 84% and Peru 38%. The spread of the infection is through inhalation and ingestion of oocysts, drinking contaminated water and consumption of raw meat.

MATERIAL AND METHODS

Five millilitre blood was collected from each of 324 pregnant women attending various hospitals in Faisalabad, Sargodha, Rawalpindi, Peshawar, Abbottabad, DL Khan, Azad Kashmir and Islamabad. Collected blood was stored for sometime. Serum was separated and transported to the microbiology laboratory through rapid postal service. Collected sera were tested for presence or absence of toxo IgG and IgM antibodies using Labsystems Uniscan II analyser. The results were interpreted as suggested in literature provided with the kits. The personal data of the patients was also collected on a proforma specially designed for the purpose.

RESULTS

TABLE. Frequency of toxoplasmosis among pregnant women in northern parts of Pakistan.

Area/Province	No. of Samples Tested	Number of Cases							
		IgG titre				IgM titre			
		> 130	60-130	20-59	10-19	Total	> 40	20-40	Total +ve
Azad Kashmir	85	3	11	18	16	48	6	22	28
Punjab	133	2	20	21	20	63	18	31	49
NWFP	106	2	14	16	6	38	2	11	13
Total	324	7	45	55	42	149	26	64	90

IgG titre	> 130	=	High positive
	60-130	=	Positive
	20-59	=	Low positive
	10-19	=	Uncertain positive
IgM titre	> 40	=	Positive
	20-40	=	Uncertain positive

Table shows the positive frequency of toxoplasma using ELISA technique (Uniscan II Labsystems). Measurable IgG antibody was present in 149 (46%) sera. According to interpretation of the results as provided by Labsystems, 7 cases (2.1%) showed titre of more than 130 and were regarded as high positive, 45 (13.8%) had titres between 60-130, graded as positive, 55 (16.9%) gave a titre between 20-59 (low positive) and 42 cases (12.9%) exhibited a titre of 10-19 which was rated as uncertain positive. IgM antibody titre were positive in 90 (27.7%) cases, twenty six (8%) showed antibody titre of more than 40 whereas, 64 (19.7%) showed as levels as IgM antibody uncertain positive.

DISCUSSION

Human toxoplasmosis is mostly subclinical but symptomatic infection may also occur usually as congenital toxoplasmosis, the most serious form of this infection. The other form is abortion which could be attributed to toxoplasma infection, such abortions are usually spontaneous. Besides these effects the infection may appear as fever, rashes, malaise, muscular pains, pneumonia and meningoencephalitis. The other consequences of this infection are still birth, microcephaly and hydrocephaly of the new-born¹⁻³. A number of techniques have been used to verify the incidence of human toxoplasmosis, including direct demonstration of toxoplasma, dye test, complement fixation test, indirect fluorescence test.³ Recently ELISA technique has been employed for quantitative detection of IgG and IgM in the suspected sera. This technique has received wide recognition and is claimed to be more precise and swift. The infection rate in the present study of 324 women was 46% which is quite high. The infection rate was high in patients from the province of the Punjab followed by Azad Kashmir and NWFP, individual values being 63, 48 and 38%, respectively. The high infection percentage in the Punjab could be attributed to more frequent animal contact because of active involvement of women in agricultural practices. Besides this, with better socio-economic conditions tendency to keep pets is also increasing in Punjab province. Cats and dogs are frequently pet animals in urban and rural areas, and the role of pet animals in the epidemiology of toxoplasma cannot be excluded. Animal contact is similarly high in Azad Kashmir and the population is largely agriculturists or graziers of small ruminants, which are mostly managed by the women. In urban NWFP, relatively low incidence of toxoplasma could be attributed to less animal contact since the old cities are congested and possibilities to keep animals are less, resulting in low rate of animal contact.

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