

Prevalence of toxoplasma IgG among pregnant women in west London according to country of birth and ethnic group

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BMJ 1993;306:185

Infection with *Toxoplasma gondii* can be acquired from soil contaminated by cats' faeces and by consumption of undercooked meat and unpasteurised goats' milk.¹ *Toxoplasma* cysts are killed by freezing or by heating above 45°C.¹ Maternal infection can result in fetal infection and damage and is estimated to occur in 0.1-0.5% of pregnancies in the United Kingdom.² The seroprevalence of toxoplasma IgG is known to vary among countries,¹ but differences according to country of birth and ethnic group have not previously been investigated in a single population based study.

Patients, methods, and results

Serum samples were collected from 6749 unselected women receiving antenatal care at two hospitals in west London during 1980-6. Maternal details recorded included country of birth and ethnic status. Women born in the Republic of Ireland or Northern Ireland were recorded as born in Ireland. British born Asian women were excluded, there being too few to analyse separately. Serum was analysed for toxoplasma IgG (Toxo-captia assay, Mercia Diagnostics, Guildford, Surrey).³ Titres >12 IU/ml were regarded as positive results. Differences in the seroprevalence of toxoplasma IgG between groups stratified by age were tested by Mantel-Haenszel's χ^2 method with one degree of freedom.

Prevalence of toxoplasma specific IgG by ethnic group and country of birth

Ethnic group and place of birth	No tested	No (%) seropositive
Black Afro-Caribbean:		
Britain	278	34 (12.2)
Africa	172	79 (45.9)
Caribbean	320	106 (33.1)
Asian:		
India and Sri Lanka	317	24 (7.6)
Pakistan and Bangladesh	170	37 (21.8)
Africa	288	44 (15.3)
Far East and South East Asia	172	16 (9.3)
White European:		
Britain	3768	502 (13.3)
Ireland	412	128 (31.1)
France	70	50 (71.4)
Scandinavia	34	3 (8.8)
Rest of northern Europe	73	20 (27.4)
Southern and eastern Europe	223	94 (42.2)
Rest of world	337	91 (27.0)
Middle East	115	39 (33.9)
Total	6749	1267 (18.8)

Altogether, 1267 (18.8%) women were seropositive, of whom 731 (57.7%) had been born outside Britain (table). Seroprevalence differed significantly between women in the same ethnic group born in different countries—for example, between black women born in Britain (12.2%) and those born in Africa (45.9%) ($\chi^2=44.9$, $p<0.001$) and the Caribbean (33.1%) ($\chi^2=27.2$,

$p<0.001$); between white women born in Ireland (31.1%) and those born in Britain (13.3%) ($\chi^2=86.6$, $p<0.001$); and between Asian women born in India and Sri Lanka (7.6%) and those born in Pakistan and Bangladesh (21.8%) ($\chi^2=18.0$, $p<0.001$).

Seroprevalence was similar in black and white British born women (12.2% and 13.3% respectively; $\chi^2=1.1$, $p>0.25$). In these women it increased with age from 9.0% (32/357) in women aged <20 to 26.3% (81/308) in women aged ≥ 35 .

Comment

The substantial differences in seroprevalence of toxoplasma IgG between women born in different countries suggest that women from countries with high prevalence of toxoplasmosis¹ were infected before immigration to Britain. National dietary characteristics may partly explain the variations. For example, many of the predominantly Hindu women from India would have been vegetarian whereas Muslim women from Pakistan and Bangladesh would have eaten meat and may have been infected while preparing raw meat. In southern and eastern Europe uncooked meat, as dried or cured spiced sausage, is commonly eaten and may be a route of infection. Consumption of partially cooked meat and cheese made from unpasteurised goats' milk is common in France. The high seroprevalence of toxoplasma IgG among women born in Ireland compared with British born women may reflect differences in the consumption of undercooked meat or unpasteurised milk or in the use of freezers over the past 30-40 years. There are, however, no data to support such speculation.

Reduction in the seroprevalence of toxoplasma IgG has been observed in France, Austria,¹ Sweden,⁴ and Britain.⁵ In Stockholm seroprevalence fell during 1969-87, coincident with increased consumption of frozen meat.⁴ In Britain consumption of meat has remained static over the past 20 years but ownership of freezers and the freezing of meat have increased dramatically. Previous British estimates of seroprevalence in women of childbearing age have ranged from 22% in England to 14-25% in Scotland.² A report from south Yorkshire shows a decline in seroprevalence over the past 20 years with only 9.0% of women aged 16-40 being seropositive in 1988-90.⁵

If antenatal screening was introduced to prevent congenital infection 87-91% of susceptible women born in Britain would require repeated serological testing throughout pregnancy. Differences in seroprevalence among countries point to the potential importance of eating habits. More detailed research is needed to determine the principal sources of infection in Britain, but health education may be an alternative to antenatal screening in reducing maternal infection.

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4 Forsgren M, Gille E, Ljungstrom I, Nokes DJ. *Toxoplasma gondii* antibodies in pregnant women in Stockholm in 1969, 1979 and 1987. *Lancet* 1991;337:1413-4.

5 Walker J, Nokes DJ, Jennings R. Longitudinal study of toxoplasma seroprevalence in south Yorkshire. *Epidemiol Infect* 1992;108:99-106.

(Accepted 30 September 1992)