SHORT ARTICLES

PREVALENCE OF CYTOMEGALOVIRUS ANTIBODIES IN THE POPULATION OF NORTHERN GREECE

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Cytomegalovirus infection is world-wide and the frequency of antibodies in serum may reach 85 per cent. or more in the general population (Rowe et al., 1956; Rowe, 1960). The spread of infection varies with socio-economic conditions; in poorer populations antibodies are already prevalent in early childhood, while in more affluent populations most infections occur in adolescence and early adult life (Stern and Elek, 1965; Li and Hanshaw, 1967). Infection is usually subclinical, but occasionally it causes an atypical, Paul-Bunnell-negative form of infectious mononucleosis, particularly in older adults (Klemola and Kääriäinen, 1965; Stern, 1968). When pregnant women are infected there is a possibility that the foetus may be involved; this occasionally leads to neonatal cytomegalic inclusion disease, which is often associated with serious brain damage and is commonly fatal (Weller and Hanshaw, 1962). The great majority of congenital infections are asymptomatic or cause only a relatively mild illness, but some of the affected infants—perhaps 10 per cent. of them—may also become mentally retarded (Stern et al., 1969).

The present investigation was undertaken to determine the prevalence of cytomegalovirus infection in Northern Greece.

MATERIALS AND METHODS

Blood samples were collected from healthy adults of various ages, mainly blood donors, hospital staff, students and pregnant women, and from children soon after their admission to hospital. The children were mostly in surgical wards but were otherwise unselected. There were roughly equal numbers of males and females in each of the age groups examined. Sera were separated aseptically, sent to London by air-mail and then kept at -20°C until examined.

Cytomegalovirus complement-fixing (CF) antibodies were estimated by the "microtitre" technique, with antigen made from the Rawles or the Ad169 strain of virus, two units of complement and overnight fixation at 4°C (Stern and Elek). Sera were examined, after inactivation at 56°C for half an hour, in doubling dilutions starting from 1 in 8.

RESULTS

Sera from 446 persons were examined (table). Only 29 sera were available from children aged 6 mth to 10 yr, but 62 per cent. of them contained antibodies. The highest frequency of antibodies (86 per cent.) was found among persons aged 26-30 yr. No significant sex difference was found; 77 per cent. (177 of 229) of males and 82 per cent. (179 of 217) of females possessed antibodies. The majority of the positive sera had antibody titres of 8-64; a few had titres of 128 or 256.

Similar findings were obtained for rural and urban areas: 302 of the 446 subjects lived in the country and 246 of them (81 per cent.) had antibodies; 144 lived in the town and 110 (76 per cent.) had antibodies.

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DISCUSSION

The findings reported here are quite different from those obtained in London (England) and in Rochester (USA), where only 4–6 per cent. of children had acquired antibodies by 5 yr of age and only 37–54 per cent. of adults had antibodies (Stern and Elek, 1965; Hanshaw, 1966). The much higher incidence of infection in Northern Greece, particularly in children, is probably due to more crowded and less hygienic living conditions, which facilitate the spread of cytomegalovirus (Stern and Elek; Li and Hanshaw, 1967). The prevalence of antibodies in Greece was similar to that reported from Egypt, Finland, Easter Island and Japan (Rowe, 1960; Haldane, Embil and Wall, 1969; Numazaki et al., 1970), where 65–85 per cent. of children have antibodies by the age of 5–10 yr and most of the population are immune by early adult life. Such widespread early infection may, of course, be advantageous and account for the rarity of reports of neonatal cytomegalic inclusion disease from Greece.

SUMMARY

A serological study has been carried out of the frequency of cytomegalovirus antibodies in urban and rural populations of Northern Greece. Complement-fixing antibodies were found in 62 per cent. of children aged 6 mth to 10 yr and in over 80 per cent. of adults.

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REFERENCES


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