

## RESEARCH NOTE

### HIGH PREVALENCE OF EPSTEIN-BARR VIRUS ANTIBODY AMONG SCHOOL CHILDREN OF THE LOW TO MIDDLE SOCIO-ECONOMIC CLASS IN BANGKOK, THAILAND

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Epstein-Barr virus (EBV), a member of the herpes virus group, has been shown to cause persistent and/or latent infections which are related to the patient's age, as well as to the respective socio-economic conditions prevailing in his/her immediate environment. In developing countries, first exposure to the virus and thus ensuing infection usually occurs during early childhood, in which case it remains devoid of clinical symptoms (Lang *et al*, 1977; Becker *et al*, 1988; Haque *et al*, 1996; Henle *et al*, 1970). Contrasting that, infectious mononucleosis (IM) generally represents the primary infection with EBV among teenagers of higher socio-economic standing in industrialized countries (Nye, 1972; Andersson-Ellstroem *et al*, 1995).

In addition, an association between EBV and various malignancies was suggested, as for example the possibility of a relationship of EBV to African Burkitt's lymphoma, as well as to carcinomas of the post nasal space, predominantly occurring in East and Southeast Asia, and to leukemia (Tischendorf *et al*, 1970).

The purpose of this study was to demonstrate the prevalence of antibodies to EBV among primary-school children in Bangkok. To that end, sera of 259 children aged between 4 and 14 years (125 boys and 134 girls) were collected as part of a clinical trial on hepatitis A immunization. The catchment area for the school is one of overcrowded, generally poor communities which have changed little, in terms of socio-economic status, since the late 1980s. Hence, the children examined, without

exception, came from low to middle socio-economic backgrounds and we obtained their respective parents' informed consent at the outset of the study. The sera were kept at -20°C until further examined. For detection of antibody of the IgG class to EBV viral capsid antigen (anti-EBV-VCA IgG) a commercially available ELISA kit (Human Gesellschaft für Biochemica und Diagnostica mbH) was used. The results as to age distribution in relation to positive anti-EBV-VCA IgG are shown in Table 1.

Table 1

Age-specific prevalence of anti-EBV-VCA IgG among primary-school children in Bangkok.

Age (Years)	No.	No. positive anti-EBV	% positive
4-6	37	36	97.29
6-8	60	59	98.33
8-10	48	48	100
10-12	95	95	100
12-14	19	19	100
Total	259	257	99.23

The population subjected to this study originated from the low to middle socio-economic class. In comparison with hepatitis A virus, the frequency of EBV infection was still very high in this school, contrasting that of HAV infection in that same school which had dramatically decreased between 1988 (31.1%) and 1996 (9.23%) (Poovorawan *et al*, 1996). This can be explained by the major im-

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provements in hygiene and sanitation conditions executed during the time period mentioned, especially since the route of infection in the case of HAV is one of oral-fecal transmission, whereas in the case of EBV all evidence points towards droplet infusion. The high prevalence of EBV infection observed may be ascribed to a relation between certain patterns of cultural behavior and transmission of herpes virus infection, as for example pre-masticating the food and passing it mouth-to-mouth to an infant or toddler, the parents sharing the same bed with an infant and infants being handled by a rather large number of relatives or community members, as it were.

Contrasting that, infectious mononucleosis in its typical form predominantly affects young adults among the higher socio-economic groups (Pereira *et al*, 1969), an observation which supports the idea of the disease resulting from a primary Epstein-Barr virus infection in subjects who have escaped subclinical infection in childhood (Nye, 1973). Although investigations of infectious mononucleosis have indicated that there may be some form of person-to-person transmission, *eg* sexual transmission, evidence in that respect is still ambiguous.

Regarding the relation between EBV infection and the diverse malignancies assumed to be associated with it, additional data will be required to shed light on the most probable chain of causality, whereby cultural, environmental and socio-economic factors ought to be taken into account.

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