Hepatitis B among Indochinese refugees in Great Britain

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Summary

Six hundred and thirty-two blood samples from 879 consecutive admissions to one resettlement camp for Indochinese refugees in Great Britain were screened for markers of hepatitis B (HB) virus infection. The overall prevalence of HB surface antigen (HBsAg) was 15%, being 16% in those aged 40 years or less, and falling to 8% in those older than 40 ($P<0.05$). No significant difference in prevalence was found between males and females. HBe antigen was detected in 56% of those with HBsAg and was demonstrable in 55-76% of those under 30 years of age. HBe antibody was found in 21% of HBsAg-positive refugees. In those under 40 years old, HB core (HBc) antibody was commoner in males ($P<0.01$). HBc antibody prevalence increased significantly with age in females ($P<0.01$) but not in males. There was no definite evidence that vertical transmission of hepatitis B was present in the group studied.

Introduction

The high prevalence of hepatitis B (HB) carriage and its related diseases in South East Asia is well known (Stevens *et al.*, 1975). With the end of American involvement in Vietnam some years ago and the subsequent changes in political structure, many people fled from the country as refugees. The route of escape that has received most attention is via the southwest coast of Vietnam to the South China Sea in small, often unseaworthy boats. The survivors of this ordeal have become known as the 'boat people', and a number of Western nations have agreed to resettle a quota of them. Great Britain is one such nation, and expects to resettle between 10,000 and 14,000 refugees. In this country their rehabilitation is administered by three charitable

associations, the British Campaign for Aid to Refugees, Save the Children Fund and the Ockenden Venture, which oversee more than 30 camps scattered throughout the country. The first camp opened in August 1979 at Sopley, near Christchurch in Dorset, and the results have been accumulated from admissions to this camp over a period of 8 months.

To date, there have been few major publications surveying the prevalence of infectious diseases in these people. Intestinal infestation with worms, *Giardia lamblia* and amoebae have been shown in up to 80% of populations studied. Malaria, notably due to chloroquine-resistant *Plasmodium falciparum*, is common (Center for Disease Control, 1979), and the high prevalence of glucose 6-phosphate dehydrogenase deficiency among refugees presents an added problem in treating this disease (Wyler, 1975).

Syphilis is more common than in Western nations (State Department of Health, 1975), and shigellosis and salmonellosis have been found among groups of sick children (Hodson and Springthorpe, 1976). Several cases of leprosy have been reported (Tan and Tan, 1980), but undoubtedly the high prevalences of tuberculosis and hepatitis B are likely to be of greatest significance to public health.

Subjects and methods

A survey was undertaken to determine the prevalence of hepatitis B virus markers in a group of Indochinese refugees. During the survey period, 879 people were admitted to Sopley camp. Each received a full medical examination on arrival, and during the following 7 days each refugee was asked to give a blood sample: 632 agreed.

HB surface antigen (HBsAg) was measured by a modification by Barbara *et al.* (1979) of the Hepatest

passive haemagglutination test (Wellcome Laboratories). HB core (HBc) antibody was estimated by solid-phase competitive radioimmunoassay (Corab, Abbott Laboratories). HBe status was determined by solid-phase radioimmunoassay, using the method of Aldershvile, Frösner and Nielsen (1980). Statistical significance was tested according to Van Tassel (1981).

Results

The overall prevalence of HBsAg-positivity was 15%; it was 16% in those aged 40 years or less, but fell to 8% above the age of 40 ($P<0.05$) (Fig. 1). No significant difference could be found by comparing male with female HBsAg positivity, either as a whole or subgrouped into those above and below 40 years of age. In contrast, the prevalence of HBc antibody was 45% at 10 years and rose steadily to reach 90% at 40 years (Fig. 2). This increase was significant in females when comparing those aged 40 or less with those older than 40 years ($P<0.01$). Significance was not achieved in the males treated similarly. However, in those aged 40 or less, HBc antibody was commoner among males than females ($P<0.01$). HBe status could be assigned in 77% of the HBsAg positive subjects, HBe antigen was found in 56% and HBe antibody in 21%. Age distribution of HBe antigen and antibody (Fig. 3) confirmed the high prevalence of HBe antigen among younger refugees, with HBe antigen demonstrable in 55–76% of those under 30 years of age.

FIG. 1. Prevalence of HBsAg by age and by sex in 632 Indochinese refugees.

Children of HBsAg-positive parents

Family clustering of HBsAg positive children with

FIG. 2. Prevalence of HBc antibody by age and by sex in 620 Indochinese refugees.

FIG. 3. Prevalence of HBe antigen, HBe antibody and HBe negative tests by age in 82 HBsAg-positive Indochinese refugees.

HBsAg positive parents was investigated. It was possible to find only 20 families in which parents were available with their children for screening and subsequently proved to be HBsAg-positive. Of 12 HBsAg-positive mothers with one or more children, only 3 had HBsAg-positive children. Of 16 HBsAg-positive fathers, only 5 had HBsAg-positive children. HBe antigen was found in one of these fathers, but in none of the mothers.

Parents of HBsAg-positive children

Twenty families with a total of 107 children, and at least one HBsAg-positive child in each family, were

screened. In 5 families with 23 children (12 HBsAg-positive), the fathers were HBsAg-positive; in 3 families with 17 children (4 HBsAg-positive) the mothers were HBsAg-positive. There was no family in which both parents were HBsAg-positive.

There were 18 HBsAg-positive children from 12 families in which both parents were HBsAg-negative. Eight of 12 fathers and 10 of 12 mothers were HBe antibody-positive. There was no definite correlation between the HBe status of the children (11 HBeAg, two HBe antibody, 6 HBe-negative) and the HBe antibody status of either their mothers or fathers. Nonetheless, it could be stated that the majority of those parents of HBsAg-positive children had evidence of hepatitis B infection at some time.

Discussion

The resettlement programme in this one camp included a period, usually less than three months, of acclimatization to the British way of life, with English language teaching and health care. After this time the refugee families were dispersed all over Britain. It was therefore impracticable to repeat hepatitis B screening after the minimum three to six months needed to diagnose chronic HBsAg carriage, and it may well be that a number of those who were originally HBsAg-positive had acute hepatitis B. The results of this survey demonstrate the high prevalence of hepatitis B virus markers in South-East Asians and confirm the impressions of other workers, including Hodson and Springthorpe (1976), Szmunn (1978), Laboratory Center for Disease Control (1979), Tong *et al.* (1979) and Aldershvile *et al.* (1980), who looked at smaller groups of Indochinese refugees. HBsAg-positivity seemed more prevalent in those aged 40 years or less than in older subjects. Szmunn *et al.* (1978) have suggested that this could reflect the natural history of HBsAg carriage, with eventual loss of HBs-antigenaemia. Alternatively, it could suggest increased early mortality of HBsAg carriers from chronic liver disease and hepatoma (Szmunn, 1978; Tong *et al.*, 1979). The high prevalence of HBe antigen among South-East Asian hepatitis carriers and the increasing prevalences of HBe and HBe antibody with age have been reported by Richer *et al.* (1977), Szmunn *et al.* (1978) and Derso *et al.* (1978) in similar groups in which hepatitis is endemic; the falling prevalence of HBe antigen with increasing age has also been noted previously by Szmunn *et al.* (1978).

The results were insufficient to show any apparent clustering of HBsAg-positive children around HBsAg-positive parents, or definite evidence of vertical transmission of hepatitis B from HBsAg-positive parents to children. This is in contrast to the results of Aldershvile *et al.* (1980) surveying a similar

group of refugees in Denmark, which showed that child HBsAg carriers clustered around HBsAg/HBe antigen positive mothers only. The reasons for this difference probably lie in the small numbers of 'complete families' available for screening. Most families had lost either parents or children, leaving small numbers available for this part of the study. Furthermore, there was a distinct impression that some of the 'families' had been assembled from unrelated persons (Houston, 1979). The high prevalence of HBe antibody in both parents and children in these families, together with single HBsAg-positive children among many HBsAg-negative siblings, suggest that the infection was probably spread horizontally.

Alternatively, the vertical passage of infection during an attack of acute hepatitis B in the third trimester of pregnancy, with subsequent clearing of maternal HBs antigenaemia, may explain these findings. If this were so, and assuming that only one HBsAg-subtype was involved, only one child in each family could be infected. The most likely explanation would seem to be that both horizontal and vertical spread of infection occur in those refugees studied, but the relatively small group studied and the large number of fragmented families made it difficult to demonstrate this.

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