Brief Communication

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Hepatitis A Virus Antibodies in Belgium: Relationship between Prevalence and Age

Summary: Epidemiological data from various countries show that the frequency of Hepatitis A virus antibodies (anti-HAV) in different population groups is largely dependent on the geographical and age distribution of the population surveyed. As regards Europe anti-HAV antibodies are generally frequent in all groups in Southern Europe while in Northern Europe these antibodies are common in older people only. The prevalence data collected in 1979 and in 1989 show that the anti-HAV antibodies rate is a function of age, but the rates for all age groups were lower in 1989 compared to 1979. In 1979, at an age between 25 and 30, some 50% of the population was anti-HAV antibody positive. The same results were obtained in another Belgian study conducted in 1979. In 1989 50% positivity was only reached at an age between 35 and 40 years. The present study confirms that anti-HAV antibody prevalence decreases with higher socio-economic status. The higher rate relative to age is associated with socioeconomic and hygienic living conditions at the time when most infections occur, i.e. before the age of 20. It can be concluded by comparing the 1979 and 1989 results that the number of adults susceptible to HAV infections has increased. This fact drew attention in view of the strongly altered travelling pattern of fairly large sections of the population.

Introduction

Epidemiological data from various countries show that the frequency of Hepatitis A virus antibodies (anti-HAV) in different population groups is largely dependent on the geographical and age distribution of the population surveyed [1-10]. In Europe anti-HAV antibodies are generally frequent in all groups in Southern Europe while in Northern Europe these antibodies are common in older people only. Epidemiological data published in 1981 show that the anti-HAV antibody rate in Belgium is indeed a function of age [11]. Some 50% of the Belgian population between the ages of 25 and 30 were anti-HAV antibody carriers. At about the age of 45 they numbered even more than 85%. Last year new sero-epidemiological data on anti-HAV antibody prevalence were collected. In this study we compare these new data with those collected in 1979 [11].

Materials and Methods

Sera from non-selected blood donors (N = 520) were collected in 1989 at the Antwerp Transfusion Centre and stored at −25 °C until serological tests for anti-HA antibodies were performed. Patients’ sera were collected by general practitioners after diagnosis of viral hepatitis was made by clinical examination. All sera (N = 313 collected from 1982 to 1984, N = 308 collected from 1987 to 1989) were taken at the time of diagnosis. An EIA technique (Havab, Abbott) was used to determine the presence of anti-HA antibodies. Positive results were confirmed by an Icon technique (Hybritech).

Results

The overall prevalence rate of anti-HAV antibodies is 64%. This percentage only gives a crude picture because it is much affected by the age distribution in the group.

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Between the ages of 35 and 40, some 50% of the population harboured anti-HAV antibodies. The prevalence in the function of age is indeed a function of age. The data show that the anti-HAV antibody test results positive for anti-HAV antibodies. Figure 1 also gives a survey of the anti-HAV antibody prevalence in the population. It can be concluded that HAV infections are still frequent even beyond childhood. The total number of clinically recognized HAV infections in Belgium is estimated at 7,129 per year, 42% of which is recorded in the group aged 20 or older.

Table 1 gives a survey of the number of clinically recognized HAV infections as a function of age. More than 50% of the clinically recognized infections are registered in patients younger than 20 years. When the anti-HAV prevalence data from 1979 and 1989 are compared, the same result is found for the group with an age between 20 and 24. Here it should be considered that there can be a limited significance of the interpretation from such small case numbers as six positives of only 19 individuals for the 1989 group.

In the group born between 1956 and 1960 (age group 20–24 in 1979, and age group 30–34 in 1989), the anti-HAV antibody prevalence increased by 11%. An analogous increase for anti-HAV antibodies is seen in the other groups. In the group born between 1951 and 1955 (age in 1979: 25–29, age in 1989: 35–39) a 13% increase is seen. In the group born between 1946 and 1950 (age in 1979: 30–34, age in 1989: 40–44) the increase is 2%. In the group born between 1941–1945 (age in 1979: 35–39, age in 1989: 45–49) the increase is 3%.

Discussion and Conclusion

The increase in anti-HAV antibody rate with age may be interpreted in two ways: either over the past few decades the number of infections in children has declined because of better hygienic and living conditions so a higher anti-HAV rate in older subjects is the result of more frequent infections contracted during childhood, or viral hepatitis A is not a typical childhood disease. Infections frequently occur in all age groups resulting in higher anti-HAV rates in older age groups [12]. In the first instance data from Gust et al. [13] and from our group [14] favour the first hypothesis. Nevertheless, when we compare the anti-HAV antibodies prevalences recorded in 1979 and 1989 (Figure 1) with the number of clinically recognized HAV infections (Table 1), it can be concluded that HAV infections are still frequent even beyond childhood. The total number of clinically recognized HAV infections in Belgium is estimated at 7,129 per year, 42% of which is recorded in the group aged 20 or older.

The prevalence data collected in 1979 and 1989 (Figure 1) show that the anti-HAV antibodies rate is a function of age and that the rates for all age groups are lower in 1989 than in 1979. In 1979 some 50% of the population in the 25–30 age group were anti-HAV antibody positive. The same results were obtained in a different Belgian study conducted in 1979 [15]. In 1989 50% positive was obtained only between the ages of 35 and 40. Although it should be considered for some age groups (e.g. 20–24 years in 1989), the limited significance of the interpretation on small case numbers such as six positives in only 19 individuals. The higher rate relative to age is associated with socioeconomic and hygienic living conditions at the time when most infections occur; i.e. especially before the age of 20. The steep rise in anti-HAV antibodies rates (Figure 1) coincides with the prewar, war and postwar period followed in the 1960’s by strong economic growth and general improvement of hygiene. The present study confirms that anti-HAV antibodies prevalence decreases with higher socioeconomic status.

Finally, the comparison of the 1979 and 1989 results indicates that the number of adults susceptible to HAV infections has increased. This fact should be given attention in