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Seroprevalence of Anti-HCV in an Urban Child Population: A Preliminary Study from Kuala Lumpur

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ABSTRACT

A pilot study to determine the seroprevalence of anti-HCV among children from Kuala Lumpur, Malaysia, was conducted using microparticle enzyme immunoassay. Serum samples were obtained randomly from children, aged between one to 16 years of age, admitted to the paediatric unit of University of Malaya Medical Centre, Kuala Lumpur for various medical reasons. Of the 179 samples assayed, only one was positive, giving the prevalence rate of 0.6%. It is reasonable to conclude that the seroprevalence of anti-HCV among children from Kuala Lumpur is low, less than 1%.

Keywords: seroprevalence, anti-HCV, child population

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INTRODUCTION

It was estimated that approximately 3% of the world population is chronically infected with hepatitis C virus (HCV)[1]. There was wide disparity in the prevalence of this infection between developed and developing countries. In Japan, the prevalence of anti-HCV among 1442 healthy children was zero[2]. Seroprevalence of anti-HCV in the United States was 0.2% in the 6-11 years age group, and 0.4% in the 12-19 years age group[3]. In Saudi Arabia, it was noted to be 1.0% among children[4]. In Cameroon, however, the seroprevalence was found to be 14.5% among children between 4 to 14 years[5].

In Malaysia, the seroprevalence of anti-HCV among adult blood donors were estimated to be between 1.5% to 3.0%[6,7]. To date, there is no study on the seroprevalence of anti-HCV among Malaysian children. We conduct a pilot study on the seroprevalence of anti-HCV among a group of Malaysian children from Kuala Lumpur, the capital of Malaysia.

PATIENTS AND METHODS

Patients: Serum samples were obtained from children admitted to the children wards of the University of Malaya Medical Centre, Kuala Lumpur, from January 1999 to January 2000 on a random basis. These samples were collected when blood sampling or venesection were performed for clinical reasons. No extra venesection was performed for the purpose of this study.

Data for each child was collected on a precoded questionnaire recording name, age, sex, ethnic group, father's occupation, reasons for admission, previous histories of jaundice and blood transfusions. Those children whose age below twelve months or who have had a history of blood transfusions were excluded. Children whose parents were not of Malaysian nationality, were excluded as well. The data on father's occupation were collected using a five-class stratification as follows: (1) professionals, (2) other college graduates, (3) skilled workers, (4) semi-skilled workers, (5) other unskilled workers and labourers.

Methods: 0.5 ml of blood sample were collected and assayed for anti-HCV with use of AxSYM® (HCV version 3.0 (Abbott Laboratories, North Chicago, Illinois), using microparticle enzyme immunoassay (MEIA).

RESULTS

During the study period, a total of 196 serum samples were collected from children aged between one to 16 years. Ten children had two samples collected and the second samples were not included in the analysis. Seven children who were previously transfused, (six thalassaemias and one acute leukaemia) were excluded. 179 samples were included for the analysis of this study.

There were 107 males (60%) and 72 females. Fifty two percent of the cases were Malays, 23% Chinese, and 25% Indians, reflecting the ethnic composition of the admissions of the department. The age ranged from 12 months to 16 years (median 6.0 years). Reasons for admissions were: infection (mainly viral fever and dengue fever) 57, neurological problems (febrile fits and epilepsy) 27, renal problems (glomerulonephritis and nephrotic syndrome) 21, endocrine problems 9, haematological problems (anaemia not requiring transfusion) 9, social reasons 8, cardiac problems 6, and miscellaneous 42. The social class of 103 cases were known: class one 7 (7%),

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class two 26 (25%), class three 35 (34%), class four 32 (31%), and class five 13 (13%).

There was only one positive result: a 13-year-old Chinese boy who was admitted for an adverse drug reaction. The overall prevalence rate was 0.6%.

DISCUSSION

This preliminary study showed that the seroprevalence of anti-HCV among Malaysian children aged between one to 16 years from Kuala Lumpur, who had never received blood transfusion previously, was 0.6%. Although arguably the sample of children in this study was representative of the demography of child population in Kuala Lumpur, the small sample size in this study would preclude too many conclusions to be drawn. Additional one or two positive cases would change the prevalence rate significantly. Nevertheless, it is reasonable to conclude that the seroprevalence of anti-HCV among children from Kuala Lumpur is indeed very low. This finding corresponded to the low prevalence rates noted among healthy blood donors in Malaysia, which were between 1.5% to 3.0%[6,7]. Generally, in Malaysians, where there are no risk factors of acquiring HCV infection, the prevalence of HCV infection is low[8].

The low prevalence of HCV infection in childhood is most probably explained by the fact that the most efficient way of HCV transmission (such as blood transfusions, intravenous drug abuse, haemodialysis, tattooing) are less frequent in children than in adults[8]. Since the only positive case in this study did not have any of the above risk groups of contracting HCV infection, perinatal transmission could be the possible route of acquiring the infection[8]. Family study would be helpful to confirm this assumption.

Further studies involving larger samples, analysis of HCV-RNA and the genotype in the seropositive cases were required to determine the epidemiology of HCV infection and the precise role of perinatally acquired infection among Malaysian children infected with HCV.

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