BRIEF COMMUNICATION

PREVALENCE OF HEPATITIS C ANTIBODIES AMONG HEALTH CARE WORKERS AT HIGH RISK FOR BLOOD EXPOSURE


KEYWORDS: Hepatitis C virus; Occupational risk; Health care workers.

Hepatitis C virus (HCV), which was first cloned by CHOO et al.1, is considered to be the major agent of post-transfusion and sporadic non-A, non-B hepatitis. HCV infection results in high chronic carrier rates leading to chronic liver disease, cirrhosis and hepatocellular carcinoma2. Health care workers are known to be at increased risk for occupational transmission of bloodborne viruses, such as HCV3,4,5. In particular, transmission through needlestick accidents has been confirmed by HCV genotyping or molecular evolutionary analysis5,6. However, few studies have been conducted among health care workers in Brazil. In order to evaluate the risk for occupational exposure, we studied the prevalence of antibodies against HCV (anti-HCV) among medical personnel at high risk working at the University Hospital of the Federal University of Goias in Goiania, Central Brazil.

A total of 150 health care workers were evaluated in this study, including 10 physicians, 90 nurses, 21 laboratory technicians, and 20 ancillary staff. They were working in the following hospital units: emergency medicine, blood bank, intensive care medicine, and dialysis center. Nine oral surgeons from the Faculty of Dentistry were also evaluated. All subjects were interviewed for possible risk factors including a history of needlestick accidents or other percutaneous exposure to blood, type of work and number of years of employment, blood transfusions, intravenous drug use, tattooing, contacts with persons having hepatitis, number of sexual partners, and history of sexually transmitted diseases. Sera were obtained from all participants and stored at -20°C until testing for anti-HCV.

A third generation enzyme-linked immunosorbent assay (ELISA) was used to detect anti-HCV antibodies using a mixture of core, NS3, NS4, and NS5 antigens (HBK 425-Hemobio, HCV ELISA, Embrabio). Positive samples were retested for confirmation of results with a line immunoassay (LIA) using immunodominant epitopes of core, E2/NS1, NS3, NS4, and NS5 antigens (Inno-LIA HCV Ab III, Innogenetics).

Of the 150 health care workers, 4 (2.6%) were found to be anti-HCV-positive in the screening test (ELISA), and 3 were subsequently confirmed positive with the Inno-LIA HCV Ab III assay, resulting in an anti-HCV prevalence of 2.0%. These results record well with prevalence rates found in Central Brazilian blood donors (2.2 by ELISA and 1.4% by LIA)11. Investigations among health care workers in Japan12, Taiwan13, France14, the United Kingdom15, Spain16, and Italy17 also indicate

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low prevalence rates. These data therefore suggest that there has only been limited occupational transmission of HCV to health care workers.

Although almost 80% of the health care employees interviewed in our study reported a history of needlestick accidents or other percutaneous exposure to blood of patients, the low anti-HCV prevalence found may be due to the low viremia levels of HCV, and the small amount of inoculum in reported accidents. The anti-HCV-positive employees had worked for more than 10 years in the blood bank (1/21), intensive-care medicine (1/46), and emergency medicine (1/59). All three had a history of occupational exposure to blood, and 2 had previously received blood transfusions.

Nevertheless, other studies have shown higher anti-HCV prevalence among health-care workers. This differs from our observations and may be due to risk factors such as the type of needle, amount of blood in the device, and the HCV-RNA status of the infected patient.

Some reports have also indicated that the risk of occupational infection with HCV is much lower than that found for the hepatitis B virus (HBV). Previously, we found a prevalence rate of 23.4% for HBV in hospital employees in Central Brazil, with the highest risk occurring at the hemodialysis center, followed by the blood bank, emergency medicine, and intensive care medicine units.

In conclusion, despite the frequent exposure to blood from patients, the prevalence of HCV infection among health-care personnel is low. However, infection remains a threat as no effective treatment or preventive vaccine is available. Efforts to avoid exposure to body fluids are therefore the best way to protect health-care workers against HCV, HBV, and other infectious agents.

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