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Comparison of Prevalence of Hepatitis B Virus Infection in Non Official Barbers with Blood Donors

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The aim of this study was to determine the prevalence of HBV infection in barbers and then to compare with results in control group. This study was a case-control survey in a time period of 4 months in Zahedan. A total of 54 women barbers and 100 cases of women blood donors were enrolled in this study. All barbers were questioned regarding risk factors for HBV infection and duration of occupation. There was no any risk factor in blood donors. Then blood samples tested for HBsAg and anti-HBc by ELISA method (Sorin-Biomedica Kit) in Zahedan Blood Transfusion Organization. After testing on blood, samples, we observed that prevalence of infection was higher in barbers (31.4%) than in comparison group (16%). There was a significant relation between the prevalence of infection with accidental needle pricks ($p = 0.005$). Also, significant difference was found between prevalence of infection and duration of occupation ($p = 0.001$). Present data showed that hepatitis B virus infection may constitute occupational hazards for barbers. Therefore, barbers should be made aware of the route of transmission of HBV infection and need to be screened for markers of infection on a basis and are prime candidates for immunoprophylaxis with hepatitis B vaccine.

Key words: Prevalence, hepatitis B virus, barbers, blood donors, occupational hazard, Zahedan

INTRODUCTION

Hepatitis B virus (HBV) infection is among the most devastating health problems in the world (Merat *et al.*, 2003). A large number of cases are seen in eastern Asia and sub-saharan Africa, where two of the most important health problems are chronic liver disease and liver cancer (Merat *et al.*, 2003; Sherlock and Dooley, 2001; Anonymous, 2003). Up to 80% of liver cancers are believed to result from this viral infection which is the most important cause of cancer mortality worldwide after smoking (Merat *et al.*, 2003; Alavian, 2001). The prevalence of hepatitis B carriers varies in different parts of the world, ranging from less than 1 to 20%. More than 50% of cases of hepatitis B are subclinical, may go unnoticed (Merat *et al.*, 2003; Sherlock and Dooley, 2001; Alavian, 2001). Thus, infected people do not usually become aware that they have acute hepatitis infection. The fact that hepatitis may be asymptomatic contributes to its transmission (Anonymous, 2003; Zali *et al.*, 2003). The route of transmission of HBV infection is mainly parenteral, but sexual contacts with infected cases and contact with a patient's blood and bloody fluids, household and occupational transmission occurs (Merat *et al.*, 2003; Alavian, 2001; Zali *et al.*, 2003). Since the barbers while shaving and coiffeurs while cutting hair, pedicuring and manicuring, may often be exposed accidentally to the blood and bloody fluids of the customers (Candan *et al.*, 2002). A little studies were done on prevalence of HBV in the world (Candan *et al.*, 2002; She *et al.*, 1998; Saglinocca *et al.*, 1997) and we did not find similar study in Iran. Therefore, we decided to determine whether barbers especially who are working non official in their house, form a risk group in terms of their role of acquiring HBV infection.

MATERIALS AND METHODS

In this cross-sectional survey, in a time period of 4 months from May to September 2005, a total of 54 women who were working in their houses as non official barbers were selected randomly using random number tables from four areas of Zahedan, a city in the Southeast of Iran. Then, we conducted a seroepidemiological study to determine the prevalence of HBSAg and antibody against HBcAg (anti-HBc) among barbers and 100 cases of women blood donors. Blood donors also selected randomly from women donors who were referred to Zahedan blood transfusion organization. All cases were questioned regarding factors such as intravenous drug use, bloodlets, jaundice, tattooing, accidental needle pricks, previous blood transfusion, history of vaccination

against HBV and duration of occupation. All barbers who had a history of prior vaccination for HBV and icterus, were excluded. In donors, all cases with having at least one risk factor for HBV were excluded. Then, blood samples tested for HBsAg and anti-HBc by using ELISA method (Sorin-bio medica kit). Subjects with a positive result test for at least one serological marker for HBV were considered seropositive. Then results of two groups compared. χ^2 analysis and Fisher, exact test were used for comparison of categorical variables. Differences with $p < 0.05$ were considered significant.

RESULTS AND DISCUSSION

Out of the 54 barbers, 17 cases (31.4%) were infected with HBV. Among infected cases, 4 cases (7.4%) had a positive test only for HBsAg (carrier). In the control group from 100 donors who, were referred to Blood transfusion center, 16 cases were infected with HBV. In control group, among infected cases, 4 cases had a positive test only for HBsAg (Table 1). Among the barbers, nobody had previous bloodlets and Iv drug use. Two barbers had a history of blood transfusion but there was not any positive test in these cases. Three barbers had a history of tattooing that in one cases anti-HBc was positive. Thirty six barbers had accidental needle pricks that in the recent group 14 cases were infected that among infected cases 3 cases were HBsAg positive (Table 2). Significant difference was observed in the prevalence of infection between barbers and comparison group ($p = 0.001$). There was a significant relation between accidental needle pricks and positivity of infection ($p = 0.005$). Also, there was a relation between duration of occupation and HBV inaction ($p = 0.001$).

Table 1: Frequency of HBV markers in barbers and donors

Group	Only HbsAg+	Anti-HBc+	Only HbsAg and anti-HBc+	Total infected cases	Negative cases	Total cases
Barbers	4	9	4	17	37	54
B. Donors	4	10	2	16	84	100

Table 2: Serum HBV positivity according to needle pricks in barbers

Risk factor (needle-prick)	HBV (+)	HBV (-)
Risk factor positive	14 (82.3%)	22 (61%)
Risk factor negative	3 (17.7%)	15 (39%)
Total	17 (100%)	37 (100%)

OR = 5.2, $p = 0.005$

Table 3: Serum HBV positivity according to the numbers of working as barbers

Time in job/years	HBV (+)	HBV(-)	Total
<6	4 (23.5%)	22 (59.5%)	26 (48.2%)
>6	13 (76.5%)	15 (40.5%)	28 (51.8%)
Total	17 (100%)	37 (100%)	54 (100%)

OR = 4.76, $p = 0.001$

The prevalence of hepatitis B infection varies in different parts of the world (Merat *et al.*, 2003; Hiroshi and Stephen, 2000). This prevalence varies from country to country and even from one region to another region and also from one group to another group (Merat *et al.*, 2003; Alavian, 2001; Hiroshi and Stephen, 2000). Present results showed that 31.4% of non official barbers were infected and 4 cases (7.4%) were carrier. All carrier cases had risk factor for occurring of infection. In 3 cases of carrier was a history of needle pricks and one cases had history of tattooing. Eighty-eight percent of infected cases were in high risk factor group (Tattooing; 1 case and needle pricks; 14 cases). The prevalence of HBV has been investigated in many occupational groups (Alavian, 2001; Hiroshi and Stephen, 2000), but a few data are available on the prevalence in the barbers especially non official barbers. In all epidemiological studies, the needle pricks and duration of occupation have been proved as the most important risk factors for occurring of infection (Merat and Zali, 2003; Candan *et al.*, 2002; She *et al.*, 1998). In a similar study conducted among barbers in Sivas region of Turkey, the prevalence of HBV was found to be higher in barbers than in comparison group (39/6% versus 28%) (Candan *et al.*, 2002). In Sivas study, also found that the most had been exposed to needle pricks or scissor cuts. In other seroepidemiological study conducted among barbers in Huanchi, China, HBV seropositivity was elevated compared with the comparison group (86% versus 61%) (She *et al.*, 1998). However, Sagliocca *et al.* (1997) did not find any association between HBV and shaving in barbers as a risk factor.

Herein, we report that 31.4% of the non official barbers were found to be HBV positive. Barbers seemed to be at high particular risk after 6 years in the jobs. This was possibly due to more contact with blood and blood fluids during the years of the profession. Very few barbers were aware of the physical signs of hepatitis (Table 3). Asymptomatic carrier frequently progresses to chronic liver diseases and cancer (Anonymous, 2004; Euler *et al.*, 2003). Present study showed that, this risk is important among the barbers. Therefore, barbers should be made aware of the route of transmission of HBV infection. Seminars should be plain for this purpose by city health services. Since, HBV infection can be prevented by vaccination and this infection is fairly prevalent, all barbers should be vaccinated against disease in the initial months of the profession.

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