SERO-PREVALENCE OF HEPATITIS C ANTIBODIES IN THE PEOPLE VISITING ROADSIDE BARBERS

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ABSTRACT
Objective: Sharing of blades and shaving kits, especially unsterilized ones are known risk factors for the transmission of Hepatitis C. The objective of this study was to determine the prevalence of Hepatitis C antibodies reactivity among the patients admitted due to any medical condition and who have been visiting roadside barbers.

Methodology: This was a descriptive study conducted from July 2007 to June 2008 in the Medical Unit-111, Jinnah Postgraduate Medical Center, Karachi. The study was designed to include patient’s demographics (age, occupation, marital status and education), clinical information and duration of the visits to roadside barbers with an approximate frequency of shavings per month. The patients with history of > 3 visits to a roadside barber during the last six months were included in the study. Whereas, the patients with history of liver disease, blood transfusion, surgery, dental treatment, tattoo marks, intravenous drug use, on regular injectable medicine (like insulin, etc), multiple sexual partners and on haemodialysis were excluded from the study. A blood sample was collected at the time of admission and the screening for HCV-antibodies was done by Enzyme Linked Immuno-Sorbant Assay (ELISA).

Results: A total of 184 male patients were included in the study. The mean age ± SD of the patients under the study was 33.8 ± 13.2 years. The majority of study patients were uneducated and belonged to low socioeconomic group. Out of 184 patients, 70(38%) were found to be HCV-antibodies reactive. In comparison to younger patients (age <40 years), the older patients as well as those with history of longer duration of visits to roadside barbers had high prevalence of HCV-antibodies reactivity, P<0.015 and P<0.02 respectively. There was no statistical significant difference for the prevalence of HCV-antibodies reactivity among the different socioeconomic groups, educational level and marital status.

Conclusion: In the present study, it is concluded that the sharing of unsterilized shaving kits and used blades by roadside barbers are the main sources for the transmission of HCV. The transmission rate of HCV infection increases with the duration and multiple exposures for shaving.

KEY WORDS: Hepatitis-C antibodies, Prevalence, Roadside Barbers.

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INTRODUCTION

Hepatitis C (HCV) is a common public health problem worldwide and high prevalence of HCV also has been observed in Pakistan but accurate epidemiological information in regarding HCV in Pakistan is quite limited. World Health Organization (WHO) estimates up to 3%
of the world’s population has been infected with HCV and worldwide there are more than 170 million chronic carriers of HCV.\cite{1} Approximately two million cases are in Japan, 2.7 million are in United States, 5 million are in Europe, and around 10 million are in Pakistan\cite{2,3}, whereas, highest prevalence rate has been reported in Egypt.\cite{4} Hepatitis C is a single stranded RNA virus of Flavivirus family identified in 1989. In the past, HCV was responsible for over 90% of cases of post-transfusion hepatitis.\cite{5} After acute HCV infection, up to 85% of patient develop chronic HCV, 10-20% of them develop cirrhosis and 1-5% may develop hepatocellular carcinoma in 20-30 years time.\cite{5,6}

The common modes of transmission for HCV are believed to be blood transfusion, IV drug abuse, reuse of syringes and needles, vertical transmission, multiple sexual partners ear piercing, tattooing and inadequately sterilized surgical and dental instruments.\cite{4,7} Another significant risk factor for the transmission of HCV is face and armpit shaving at community barber shops. The delicate skin of the face and armpit are susceptible to micro trauma, leading to possible exposure to HCV, especially through contaminated traditional long handle razors.\cite{8} The reports of high transmission of HCV have been reported from the different regions of Pakistan among the people who have been visiting community barber shops regularly\cite{9}, whereas the present study was conducted to determine the prevalence of HCV-antibodies reactivity among the people visiting roadside barbers (barbers who provide hair cutting and shaving service at pedestrian pathways without any proper shop).

**METHODOLOGY**

This was a hospital based descriptive study conducted from July 2007 to June 2008 at Medical unit-111, Jinnah Postgraduate Medical Center Karachi. The study was designed to include patient’s demographics (age, education level, occupation and marital status), clinical information and duration of the visits to roadside barber with approximate frequency of shavings (face, armpit and hair cut) per month. The patients who fulfilled the inclusion criteria were enrolled into the study and were asked specific questions related to the history of shaving as well as various risk factors for the transmission of HCV. The data was entered separately into the proforma. The patients with history of > 3 visits to roadside barber (a barber who provides hair cutting and shaving service at pedestrian pathways without any proper shop) during the last six months were included into the study. Whereas, the patients with history of liver diseases (including known cases of hepatitis B and C), blood transfusion, surgery, dental treatment, tattoo marks, intravenous drug use, on regular injectable medicine (like insulin, etc), multiple sexual partners and on haemodialysis were excluded.

At the time of admission, 2ml blood sample was collected and the screening for HCV-antibodies was done by the Kit for ELISA (Enzyme Linked Immuno-Sorbant Assay) = ETI-AB-HCVK-4 method (Machine: MUTISKAN EX, Type-355, Thermo Electron Corporation, Finland) at Medical Unit-111 JPMC laboratory. The cut off value for HCV IgG antibodies above the 0.595 was considered significant. The other tests were done as per the requirement of medical condition for which patients were admitted into the ward and the patients received treatment according to their primary medical conditions. After discharge from the ward, the patients with positive HCV-antibodies were advised to followup in the Gastroenterology clinic for the further management of HCV. The study was approved by the Ethical Committee of the hospital and the study subjects gave their written informed consent to the study protocol. The data was analyzed by SPSS-11 version. A \( p \) value of <0.05 was considered significant for statistical analysis.

**RESULTS**

A total of 184 male patients fulfilled the inclusion criteria. The mean age ± SD of the patients under the study was 33.8 ± 13.2 years (17-65 years). The majority (71%) of the patients was under the age group of 40 years and 60.3%
were married. Out of 184 patients, 77 (41.8%) were laborers followed by 21 (11.4%) farmers, 19 (10.3%) shopkeepers, 17 (9.2%) students, 15 (8.2%) guards and 45 (23.8%) others. Ninety three (50.5%) patients were uneducated, whereas 15(8.2%) had primary, 25 (13.6%) middle, 40 (21.7%) secondary and 8 (4.3%) higher secondary education. Only three (1.6%) patients were graduates. Pneumonia, diabetes mellitus, uncontrolled hypertension, stroke, anemia, immune thrombocytopenia, malaria, typhoid fever, urinary tract infection (UTI), chronic obstructive airway diseases, meningitis, etc were the most common diseases for which patients were admitted in the medical ward.

The duration of visits to roadside barbers was extended from more than six months to 40 years. Seventy nine (42.9%) patients have been visiting roadside barbers for 5-20 years, followed by 63 (34.2%) for 20-40 years and 42 (22.8%) for less than 5 years. When the frequency of visits per month to roadside barbers was calculated, it showed that most (84.3%) of the patients used to visit 5-10 times/month, whereas 12.8% visited for less than five times and 3.8% for > 10 times.

Out of 184 patients, 70 (38%) were found to be reactive for HCV-antibodies. When the prevalence of HCV-antibodies reactivity was compared among the married and unmarried and different educational levels of the patients it was found to be statistically insignificant (Fig-1). whereas, high prevalence of HCV-antibodies reactivity was found in older age group patients. In patients under the age of 40 years, 31.6% of them were found to be HCV-antibodies reactive, but in those patients whose age was 40 years and above, 50% of them were positive for HCV-antibodies, $P < 0.015$ (Fig-2). Furthermore, in comparison to the patients with shorter duration (<20 years) of shaving years, the patients with history of >20 shaving years were also found to have high prevalence of HCV-antibodies reactivity (33% vs. 49.1%), $P < 0.02$ (Fig-3). All the patients received treatment according to their primary illness and they were discharged from the ward once their clinical condition became stable, HCV positive patients were given further appointment to follow in gastroenterology clinic.

**DISCUSSION**

This study clearly indicates that the prevalence of hepatitis C is significantly high in those people who visit roadside barbers and the risk increases with the duration and frequency of

![Fig-1: HCV-antibodies reactivity according to marital status of the patients.](image1)

![Fig-2: HCV-antibodies reactivity according to the age of the patients.](image2)
Sero-prevalence of Hepatitis-C antibodies

visits. Many studies have been conducted worldwide; including in Pakistan on different population groups to detect the prevalence of HCV-antibodies reactivity and the prevalence of HCV-antibodies have been reported variably in different parts of the world. In most of the western countries, the prevalence of HCV-antibodies in the general population ranges from 0.3-0.7%, in USA 1.8%, in African countries 5.2%, in India 4.8% and in Pakistan 6%, whereas, the highest prevalence rate of 22% of HCV-antibodies has been reported in Egypt. The prevalence of hepatitis C in the general population is increasing in Pakistan. In 1994 the prevalence rate was 0.44%, which increased to 1.8% in 1996 and in 2007 it was 17.7%, as reported by Agbotwalla et al, Kakepotot et al and Nafees et al respectively. It is estimated that more than 10 million people in Pakistan are living with HCV infection and several population groups have been described as being at increased risk of HCV infection such as people visiting barber shops, blood donors, IV drug users and patients on regular blood transfusion.

In our study, HCV-antibodies prevalence rate was significantly higher than the general population as mentioned above. This signifies the high transmission rate of HCV by saloon services provided by roadside barbers who use improper sterilized shaving kits and used blades. Bhutta et al and Anwer et al have reported even higher rate of prevalence of HCV-antibodies 66.7% and 46% respectively, among the people who have been visiting community barber shops.

Several published studies suggested that the use of unnecessary injections, reuse of unsterilized needles and blood transfusion are also still major sources of HCV transmission in Pakistan. In patients on haemodialysis, the prevalence of HCV-antibodies also has been observed to be high (23.7%-68%) whereas the risk of HCV transmission through blood transfusion in Pakistan is still unknown but it is considered to be high due to a lack of appropriate screening of blood. High prevalence of HCV-antibodies has been recorded among the middle aged (40-50 years) people. In the present study, we also had the same observation. In comparison to patients with age < 40 years, patients with age > 40 years had high prevalence of HCV-antibodies reactivity. The increase in rate of prevalence with age occurs because of the continuing risk of exposure or a cohort effect with declining risk in more recent times.

In this study, we observed high prevalence of HCV-antibodies among the patients who visited roadside barbers and the risk increases with the duration. Increased risk of transmission with duration signifies that the person is constantly exposed to the high risk. Another important finding in our study was that there was no significant difference of the prevalence of HCV-antibodies between married and unmarried people. The above observation is also reported in the earlier studies. The transmission of HCV infection among a monogamous couple is negligible, especially when HCV PCR is negative and it supports the current clinical practice of not recommending that such couple change their sexual practice.

Considering high prevalence rate of HCV infection among the people who are visiting roadside barbers, efforts should be taken not only to provide the information regarding HCV infection to the general public but barbers also should be educated regarding the safe use of shaving kits and should be encouraged to use new blades for every person. Furthermore, steps
should be taken to ensure hair cutting and shaving services are being provided in proper community barber shops with appropriate arrangements for the sterilization of shaving tools.

**CONCLUSION**

Sharing of un-sterilized shaving kits and used blades by roadside barbers are potential sources for the transmission of hepatitis C. The risk of HCV transmission is significantly increased with multiple exposures and also with the duration of visits to roadside barbers.

**REFERENCES**


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