

ORIGINAL ARTICLE

PREVALENCE, KNOWLEDGE AND AWARENESS OF HEPATITIS C AMONG RESIDENTS OF THREE UNION COUNCILS IN MANSEHRA

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Background: Pakistan is home to approximately 10 million HCV infected people. HCV prevalence is expected to be higher in the earthquake affected area of Tehsil Oghi. The aim of this study was to estimate HCV prevalence in three Union Councils of Tehsil Oghi, i.e., Oghi, Shamdhara and Kathai, and to assess HCV knowledge and awareness in the population. **Methods:** This is an observational study carried out during June 2010. Blood samples of 648 participants were analysed for the presence of anti HCV antibodies using Immuno-chromatographic method and a knowledge and awareness questionnaire was administered to the participants. **Results:** 394 (61%) participants were females, while 254 (39%) were males. The overall prevalence of HCV in the study area was recorded as 67 (10.3%). Prevalence among male participants was 30 (11.8%), whereas, that among female participants was 37 (9.4%). Prevalence estimates in Oghi, Shamdhara and Kathai were 10.3%, 11% and 9% respectively. Knowledge and awareness regarding HCV was inadequate among the study population. **Conclusions:** HCV prevalence in the study area is higher than the overall prevalence in Pakistan. HCV related knowledge and awareness among population in the area is inadequate. There is a need to undertake a large scale population based epidemiological study and to introduce health interventions to control and reverse the spread of HCV in the area and to impart health education and awareness to the masses.

Keywords: HCV, Hepatitis C, Prevalence, Knowledge, Hazara

INTRODUCTION

Hepatitis C virus (HCV) is a major cause of liver disease and has a high potential to cause significant morbidity and mortality.¹ Prevalence of HCV in Pakistan is among the highest in the world and estimated to be 4.8%.² Although, 10 million people are infected with HCV in Pakistan,³ very little is known about its epidemiology and there is scarce reliable information about its prevalence in different areas of the country.^{3,4}

The major modes of HCV transmission in Pakistan are use of contaminated needles and instruments in medical practice, unsafe blood and blood product transfusion, intravenous drug use, face and armpit shaving with unsterilised instruments by barbers, ear and nose piercing, poor personal hygiene habits and quackery (poor medical practice by non-qualified people).³⁻⁶ The single most important cause of HCV transmission in the country is lack of proper screening of the transfusion blood.⁷

HCV infection has serious sequelae; it can lead to acute hepatitis, chronic hepatitis or a chronic carrier state and may ultimately lead to end stage liver disease, cirrhosis or hepato-cellular carcinoma (HCC), all of which are irreversible conditions.^{1,4,5} More than half of all HCV infections lead to chronic liver disease,^{8,9} and majority of HCC cases in Pakistan are associated with HCV.¹⁰⁻¹² No vaccine or post exposure prophylaxis is available for HCV as yet, treatment cost is very high

and response to treatment is variable.^{13,14} However, its spread can be curtailed by adopting certain preventive measures, such as, ensuring safe blood supply, better injection practices, reducing injection drug use and education and awareness of the masses.^{1,13}

It is feared that HCV prevalence may be considerably higher in the Hazara Division, particularly in the aftermath of October 2005 earthquake, which took more than 100,000 lives.^{15,16} Use of unscreened blood for transfusions and surgeries performed without meticulous sterilisation form the basis of this fear.¹⁷ However, the fact remains that no reliable baseline information is available on HCV prevalence in the area. Only a handful of studies have attempted to estimate HCV prevalence in Hazara. The availability of accurate baseline data is essential to monitor the trend of a disease and to measure the impact of any intervention in a particular area.¹

Recent research shows that HCV knowledge and awareness is very low among general population in Pakistan, particularly among women and less educated people.^{13,18,19} Keeping in view the low literacy and high poverty rates in Hazara, HCV awareness is expected to be very low. In addition, limited healthcare facilities, preponderance of unqualified practitioners and less penetration of the mass media make it very prone to HCV spread. However, no attempt has been made to estimate the prevalence of HCV in Tehsil Oghi, to date.

An international non-governmental organization (NGO) working in the area took the

initiative and sanctioned a research study in three most populous Union Councils (UCs) of Tehsil Oghi. The aim of this study is to estimate the prevalence of HCV and to assess knowledge and awareness of the general population regarding HCV in Union Councils Oghi, Shamdhara and Kathai.

MATERIAL AND METHODS

It was a descriptive observational study. Only residents of the three UCs were eligible to participate. No restriction was placed on the basis of age and gender to ensure maximum participation. The place of residence was confirmed by the national identity cards of the participants. Residents of any area other than the three UCs were not eligible to participate.

Assuming a 5% HCV prevalence in the study population, with 95% confidence interval width of $\pm 2\%$ around the point estimate of prevalence, the required sample size was 457.

Data was collected during June 2010. In each UC, a volunteer was assigned the responsibility of promoting the study and raising peoples' awareness regarding free HCV testing. The volunteers used different means to convey the message to people of their respective areas; these included announcements through microphones, banners and personal contacts. People were asked to show up at specified local community centres at a specific date and time. Participation in the study was completely voluntary and informed consent was taken from each participant after explaining the study and potential risks and benefits of participation.

Baseline demographic information including name, age, gender, address and contact detail was collected from all the participants. A questionnaire to assess knowledge and awareness was then administered to the participants. Those who could read and write were asked to fill up the questionnaire themselves, help was offered if required. To all other participants, questionnaire was read out and filled by the field staff. 2 ml of venous blood was collected from the participants in a 5 ml BD syringe and immediately transferred to a special tube and labelled. All samples were transferred from field to the laboratory of Basic Health Unit (BHU) Kathai within two hours of collection, where they were stored at low temperature, as instructed by the manufacturer's manual.

In the laboratory, blood samples were centrifuged to separate the serum, which was subsequently tested with Immuno-chromatographic method, using 'Insta-Answer' kits (made in USA), and test results were recorded as either positive or negative. This test is based on detecting viral specific antibodies in serum samples. All samples were tested the same day as collected. According to the manufacturers' literature, the relative sensitivity and specificity of HCV testing kits was 96.8% and 99% respectively.

Test results were kept strictly confidential and were only conveyed to the participants themselves. Those with a positive test result were given advice on further testing and treatment, and were referred to the nearest government health facility.

Data was analysed using SPSS-18. Overall prevalence was calculated and data was stratified on the basis of geographical location, gender and age. The final analysis was performed on 648 participants and none of the participants was excluded from the analysis.

RESULTS

Blood samples were collected and knowledge and awareness questionnaires were administered to a total of 648 participants from three UCs. Overall, 263 (40.6%) participants were from UC Shamdhara, 263 (40.6%) from UC Oghi and 107 (18.8%) from UC Kathai. Female participants were 394 (61%), while 254 (39%) were males. In all areas, participation rate of females was higher than males. All participants were adults, except one aged 15 years, the age of participants ranged from 15–50 years.

Out of 648 blood samples analysed for presence of anti HCV antibodies, 67 tested positive, therefore, overall HCV prevalence in the study area was 10.3% (Table-1). HCV prevalence was 11.8% (n=30) among males and 9.4% (n=37) among females (Table-2). Prevalence among females was higher than males in Shamdhara and Oghi, but was lower in Kathai. Male to female HCV positive ratio was 1:1.23, but male to female participation ratio was 1:1.55. Prevalence of HCV in males was 2.4% higher than females. The ages of the HCV positive participants ranged from 22–50 years.

Highest prevalence was seen in the male population of UC Oghi (13.1%), while the lowest was recorded in females in UC Oghi and in males in UC Kathai (8.3%). In all areas, the point estimate of HCV prevalence was higher than Ministry of Health's estimated overall prevalence of 5% in the country.²

Table-1: HCV prevalence in study area

Location	HCV +ve n (%)	HCV +ve n (%)	Age Range (Yrs)
Shamdhara (n=263)	29 (11)	234 (89)	25–50
Oghi (n=263)	27 (10.3)	236 (89.7)	22–45
Kathai (n=122)	11 (9)	111 (91)	30–40
Total (n=648)	67 (10.3)	581 (89.7)	22–50

Table-2: HCV prevalence in different areas according to gender [n (%)]

Location	Male			Female		
	Positive	Negative	Total	Positive	Negative	Total
Shamdhara	12 (12)	87 (88)	99 (38)	17 (10.4)	147 (89.6)	164 (62)
Oghi	14 (13.1)	93 (86.9)	107 (41)	13 (8.3)	143 (91.7)	156 (51)
Kathai	4 (8)	44 (92)	48 (39)	7 (9)	67 (91)	74 (61)
Total	30 (11.8)	224 (88.2)	254 (39)	37 (9.4)	357 (91.6)	394 (61)

Table-3: Comprehensive analysis of knowledge and awareness questionnaire

Question	Number (%)
Have you ever heard of Hepatitis C?	
Yes	574 (88.6)
No	74 (11.4)
Have you received information about Hepatitis C in the past 12 months?	
Yes	574 (88.6)
No	74 (11.4)
From what sources have you received information about Hepatitis C in the past 12 months?	
Mass Media (TV, Radio, Newspaper etc.)	389 (60)
Healthcare Provider	574 (88.6)
Parents	389 (60)
Other Family Members	178 (27.5)
Relatives	178 (27.5)
Friends	178 (27.5)
Which healthcare provider told you about Hepatitis C?	
Doctor	574 (88.6)
Nurse	98 (15.1%)
LHW	98 (15.1%)
LHV	98 (15.1%)
Dai	0 (0)
Do you know how Hepatitis C transmits from one person to another?	
Yes	470 (72.5)
No	178 (27.5)
Can you tell how does Hepatitis C spread?	
By using Infected Blood	467 (72.1)
By using Infected Needles/Syringes	467 (72.1)
By using Infected Razor/Blades	467 (72.1)
By having sex with an HCV Positive Person	86 (13.3)
By using Tooth Brush of an HCV Positive Person	233 (35.9)
Can Hepatitis C be transmitted from a mother to a baby?	
Yes	96 (14.8)
No	468 (72.2)
How can you prevent getting Hepatitis C?	
Using Screened Blood Only	467 (72.1)
Using Sterilised/New Needles/Syringes	467 (72.1)
Using Sterilised/New Razor/Blades	467 (72.1)
Having Safe Sex	86 (13.3)
Using own Tooth Brush Only	233 (35.9)
Have you ever been tested to see if you have Hepatitis C?	
Yes	40 (6.2)
No	444 (68.5)
Don't Know	164 (25.3)

Comprehensive analysis of knowledge awareness questionnaire is presented in Table-3. This analysis reveals that 11.4% participants had never heard about HCV and did not receive any information about HCV during the past 12 months; 27.5% participants had no idea that HCV can be transmitted from one person to another; 72.1% participants were aware that HCV can be transmitted through infected blood, needles and blades. However, only 13.3% and 35.9% participants knew that HCV can be transmitted by having sex with an HCV positive individual and using toothbrush of HVC positive patient, respectively, 72.2% participants did not know that HCV can be transmitted from infected mother to the baby, 68.8% participants had never been

tested for HCV, and 25.3% of participants did not know whether they had ever been tested. The study shows that various healthcare providers including doctors, followed by the mass media and parents were the major source of information about HCV in the area.

DISCUSSION

HCV prevalence estimate from this study is higher than the official prevalence estimate² and some that of other studies estimating HCV prevalence in the country.^{4,20,21} Our estimate was, however, close to the estimate from another study which estimated community based HCV prevalence in the country to be 11.52%.²² We did not find a single large scale study estimating the overall HCV prevalence in Hazara division. Among the studies which have attempted to estimate HCV prevalence in different areas of Hazara, our estimates are higher than some studies,^{17,23,24} and lower than two of the studies.^{25,26} Our study was different from other studies, as majority of participants in this study were females, but like other studies, prevalence was higher among males than in females. The prevalence in Kathai (9%) was relatively lower than Oghi (10.3%) and Shamdhara (11%), which may be due to low participation rate owing to less accessibility and remoteness of the area.

Our study also showed that knowledge and awareness of population in the study areas regarding HCV, its modes of transmission and methods of prevention was inadequate. Our findings are consistent with the findings of other studies analysing hepatitis related knowledge and awareness in different areas of Pakistan. A number of studies have reported a low level of knowledge relating to cause, modes of transmission, methods of prevention and consequences of HCV, particularly in women, uneducated and rural populations.^{18,27-29}

LIMITATIONS AND STRENGTHS

We could not select a random sample due to limited resources, remoteness of the area and challenging terrain. In addition, there is no accessible population registry or electoral roll, the houses are built randomly and are usually far off from each other. Thus the only feasible option was voluntary participation.

Due to financial restraint, we used ICT method for detecting anti HCV antibodies in the serum samples, whereas, second or third generation Enzyme Immunoassay (EIA) due to higher sensitivity is the recommended method for HCV screening.³⁰ Moreover, a study aimed at assessing efficacy of ICT method in HCV diagnosis concluded that this method may be used for screening in resource limited settings, but should not be the only criteria for diagnosis.³¹ So, the presence of false positive and negative tests in our study cannot be ruled out.

Majority of participants in our study were aged between 20–40 years, which was expected due to the voluntary participation design. For HCV positive people aged 50 and above, it is highly likely that they are aware of their HCV status or even may have developed some of the potential complications.

There is a lack of high quality community based epidemiological studies on hepatitis in Pakistan, majority of studies have focussed on high risk groups such as blood donors and chronic liver disease patients. Even population based studies, in general, have limitations in small sample size and lack of representation across the country.³²

The main strength of our study is the sample size which is larger or comparable to other HCV prevalence studies in Hazara.^{17,26} In addition, our study not only analysed the magnitude of the problem but also assessed general awareness about HCV, which has not been attempted before in the study area. This study will, therefore, form basis for further research and provide baseline data for designing health interventions and policy formation in Hazara division.

CONCLUSION

The prevalence of HCV in UCs Oghi, Shamdhara and Kathai is higher compared to 5% overall HCV prevalence in Pakistan. The prevalence is higher among males than females and knowledge and awareness of general population regarding HCV transmission and prevention is insufficient. There is need to undertake a large scale population based epidemiological study and to collect reliable data on HCV prevalence in the area. Screening programs need to be implemented to identify patients at an early stage and positive cases should be offered counselling and treatment. There is also a dire need to introduce health interventions to control and reverse the spread of HCV in the area and to impart health education and awareness to the masses.

CONFLICT OF INTEREST

Dr. Abdul Basit is a former employee of Action Aid, Pakistan which funded the study.

AUTHORS' CONTRIBUTIONS

AB, MSJ and HA designed the study. AB supervised data collection and interviews with assistance from RS. MSJ analysed the results and drafted the manuscript. HA reviewed and provided comments on the manuscript. All authors approved the submitted manuscript.

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