Open access Journal International Journal of Emerging Trends in Science and Technology

Seroprevalence of HCV Infection in the Residents of three Union Councils of Jamshoro District, Pakistan

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Abstract:

Background: *HCV infection is the leading cause of mortaility around the world particulary in Pakistan. Hepatistis can severly damage liver which ultimately leads to the death of patient. Number of reports around the world indicate the higher rates of prvelence of HCV infection, particularly in Asian and underdeveopled countries. We therefore have setu up crosssectional study to assess the HCV infection in the residents of three union councils of Jamshoro District.*

Methodology: *The study was conducted for the period of six months from january 2013 to june 2013. The data was obtained by interview based structured questionnaire comprised of questions about transmission of risk factors and awareness of HCV. Serum was obtained by centrifuging the blood and HCV was detected using Elisa Kit.*

Results: *Total 662 subjects were randomly selected for the study, out of which 351 (53%) males and 311 (47%) were females. The over all prevalnce rate of HCV positive cases was recorded as 128 (19.33%), Of these 128, 71(55.5%) were males and 57(45.5%) were females. HCV infection was common in all age groups and overall the level of awareness was very low, and even lower in case of tranmission of HCV infection from one person to other person.*

Conclusion: *HCV is increasing at alarming level in the residents of studied Union councils, and the residents are less aware about the prevention measures, practical steps are needed to aware the people about HCV infection and its routes of transmission.*

Keywords: *Prevalence, Awareness, Hepatitis C, Jamshoro.*

Introduction

Hepatitis B and C (HCV) are a global public health problem and prime cause of the liver diseases, particularly cirrhosis and liver cancer(Shepard, Finelli et al. 2005; Gower, Estes et al. 2014). HCV infection is asymptomatic in earlier stages and very dangerous during the later stages and the chronic infection of HCV severely damages the liver leading to death of patient (Maasoumy and Wedemeyer 2012; Lee, Yang et al. 2014). HCV risk factors mainly transmit with the use of intravenous drug(Mujeeb 2001), blood transfusions (Khattak, Akhtar et al. 2008)and unsafe medical procedures(Moore, Schaefer et al. 2011), sexual intercourse(Qureshi, Arif et al. 2007), piercing or painting of tattoos on body(Rathore, Shah et al. 2012), use of shared personal items such as razors(Rathore, Shah et al. 2012), tooth brushes and nail cutters(Bari, Akhtar et al. 2001; Raja and Janjua 2008). HCV infections are regarded as a major contributor of significant morbidity and mortalityglobally and particularly in Asian countries(Sievert, Altraif et al. 2011). World Health Organization has reported 170 to 200 million of world population is affected with HCV infection, the report further states that the rate of infected people per year is 2–4 million, and more than 360,000 people die per year in hepatitis C disorder(Alter 2007; El-Serag 2007; Mohd Hanafiah, Groeger et al. 2013).According to WHO fact sheet, about 75-85 % of newly infected persons develop chronic disease and 60–70% of chronically infected people develop chronic liver disease; 5–20% develops cirrhosis and 1–5% dies from cirrhosis or liver cancer(De Cock, Simone et al. 2013; Mohd Hanafiah, Groeger et al. 2013).

It has been reported that the prevalence of HCV infections are higher with an estimated percentage of >3.5% in Central and East Asia. Prevalence of HCV is much is higher in Pakistan and the study reports an estimated 10 million Pakistani people are affected by HCV(Khokhar, Gill et al. 2004; Ahmad, Asgher et al. 2007;Raja and Janjua 2008).This might be due to the lack of knowledge about the routes of transmission of HCV. According to Human development index Pakistan is ranked at 146thlow literacy rate countries; due to illiteracy people do not have sufficient knowledge about the prevention of risk factors of HCV infection(Abdul Mujeeb, Nanan et al. 2006; Ahmad, Asgher et al. 2007; Idrees and Riazuddin 2008). Sindh is southern part of Pakistan, the number of reports suggests a significant prevalence of HCV in Sindh (Shaikh, Shaikh et al. 2003; Abbas, Jeswani et al. 2008; Shaikh, Ali Abro et al. 2009; Aziz, Khanani et al. 2010),and howeverthe awareness about the transmission of HCV risk factors has been an understudied area.

We therefore set up a cross sectional study to find out the rate of prevalence of HCV in residents of three union councils, namely Allah BachayoShoro, Jamshoro and ManjhoShoro of Jamshoro District. Our other objectives are to assess the level of awareness in the local population about HCV infection and the routes of transmission of HCV.

Methodology

Study setting and sample

This was a cross-sectional study carried out randomly on the population of three union councils ManjhoShoro, Jamshoro and Allah BachayoShoro of district Jamshoro. District Jamshoro has an estimated population of 0.5 million, and it is located at southern province of Pakistan. This study was conducted from January 2013 to June 2013. Total number of participant was 662 including male and female of different ages.

Measurements and Collection of Data

The data was obtained by trained team of the post graduate students of physiology department of Sindh University Jamshoro. Residents of studied are were taken into confidence, and informed consent was obtained from all the residents who participated in this study. The data was obtained through interview based structured questionnaire,

the questionnaire comprised of questions about basic personal, demographical information and awareness of transmission risk factors of Hepatitis C.

Blood was drawn and serum was taken by centrifuging the blood at 10000 rpm for 5 minutes, serum was kept at -20ºC. The samples were tested for HCV using Elisa kit (Human Diagnostic Kit) on the same day. All the steps for Elisa test were carried out using manufacturer's instructions. The results were obtained by ELISA reader (ASYS UVM 340). Statistical analysis was carried out using SPSS version 18.

Results

Out of 684 residents, 662 agreed to participate in the study giving the response rate of 96.8%. Out of these 662, 351(53%)were males and 311(47%) were females. All the residents, who participated in the study, were aged ≥15 years.According to Table 1, overall prevalence rate was 19.33%. Of these 128 HCV positive cases, 71(55.5%) were males and 5745.5%) were females. Highest numbers of HCV cases (n=45) were found in the younger age group 15-29 years. Prevalence of HCV infection was common in all age groups ranging from 15.7 to 21.3%; however HCV infection was more prevalent (26.8%) in older age group ≥60.According to the living area as shown in Table 1, the higher prevalence of HCV infection 21.2% and 19.5% was found in Union Council ManjhoShoro and Allah BachayoShoro respectively. The lowest prevalence (17.9%) of HCV was found in Union Council Jamshoro,

Lack of awareness about the HCV infection and its routes of transmission is the major contributor in the increased prevalence of HCV infection. In order to assess the level of awareness in the residents of these three Union Councils, we asked them two simple questions through questionnaire. Only 27, 3% responded with yes (Figure 1) when asked if they have any knowledge about Hepatitis C infection. Surprisingly, very small portion (6.9%) of the respondents knew the routes of transmission of Hepatitis C virus (Figure 1).

Table 1, Prevelence of HCV infection according to gender, age and living area.

	HCV +ve (n=128)	HCV –ve (n=534)	Total (n=662)
Gender			
Male	71 (20.2)	280 (79.8)	351 (100)
Female	57 (18.3)	254 (81.7)	311 (100)
Age (years)			
15-29	45 (19.1)	191 (80.9)	236 (100)
30-39	23 (15.7)	124 (84.3)	147 (100)
40-49	26 (19.4)	108 (81.6)	134 (100)
50-60	19 (21.3)	70 (78.7)	89 (100)
≥60	15 (26.8)	41 (73.2)	56 (100)
Living area			
Jamshoro	55 (17.9)	253 (82.1)	308 (100)
Manjho Shoro	49 (21.2)	182 (78.8)	231 (100)
Allah Bachayo Shoro	24 (19.5)	99 (80.5)	123 (100)

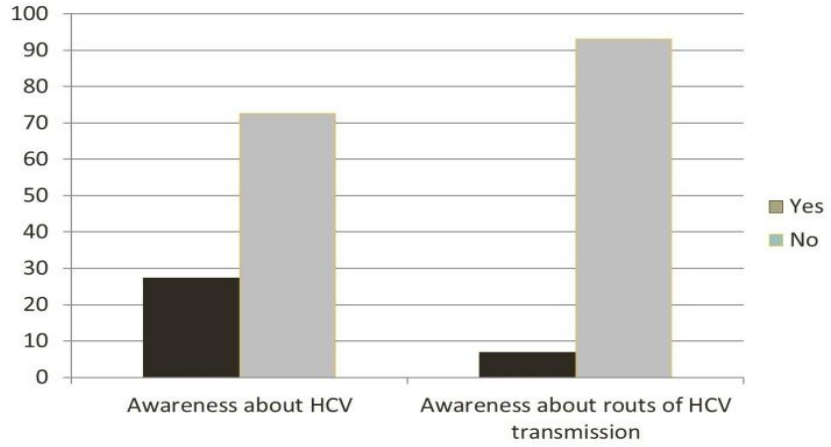

Figure 1, Graphical representation of the level of awarness about HCV infection and its routes of transmission in the residents of Jamshoro District

Discussion

The data we have collected shows the highest prevalence of HCV in District Jamshoro (Table 1), number of other reports also show the higher prevalence from other parts of Pakistan(Attaullah, Khan et al. 2011), particularly, Sindh(Abbas, Jeswani et al. 2008; Aziz, Khanani et al. 2010). Highest prevalence of hepatitis in these rural areas might be due to illiteracy and poverty. We have found that males have higher rate of prevalence of hepatitis C infection than females, which is in agreement with available literature (Shaikh, Shaikh et al. 2003). This might be due to the fact that males are often exposed to the unhygienic blades of barber while shaving. Higher prevalence in males has also been reported in other studies(Shaikh, Shaikh et al. 2003; Butt and Amin 2008).

Our data also indicate that HCV infection is common in all age groups, however it increases with increasing age (Table 1), and this is due to the fact that increasing age might make them more exposed to blades, syringes, dental and some other surgical instruments during treatment(Strickland 2010). Overall the proportion of HCV positive cases was higher in younger age group; this was due to high number of young participants involved in HCV screening. The older age group was at more risk and they had higher percentage of HCV infection (table 1). Our finding is consistent with the study where they report that prevalence rate of HCV increase with increasing age(Aslam and Aslam 2001).

We screened three union councils for HCV infection, our findings clearly suggest that those who live in semi urban population such as union council Jamshoro, and they have less chances of HCV infection than those who live in purely rural set up as in Union Council ManjhoShoro and Allah BachayoShoro (Table 1). This is in agreement with already published studies where it has been shown that prevalence is higher in rural setup than in urban set up(Abbas, Jeswani et al. 2008; Aziz, Khanani et al. 2010;Jamil, Ali et al. 2010).

We have also analyzed the level of awareness in local residents about the HCV infection and its routes of transmission. Our data shows that people are not generally aware about HCV infection and very few people know the routes of transmission (Figure 1). The reason for this lack of awareness is illiteracy, poverty, and lack of policy making about eradication of HCV infections (Aziz, Khanani et al. 2010; Jamil, Ali et al. 2010). This clearly indicates that HCV infection is higher due to lack of awareness in general population of Pakistan.

Conclusion

We conclude that HCV infection is higher in JamshoroDistrict and people are generally not aware about HCV infection and its transmission

routes. This study put an insight into the alarming increase in the prevalence of HCV infections. Hepatitis C infection can be prevented with spreading the awareness amongst local residents of Jamshoro District.

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