

CAUSES OF PREVALENCE OF HEPATITIS–C IN VILLAGE MALKANI SHARIF, DISTRICT BADIN, SINDH, PAKISTAN

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Abstract

Chronic Hepatitis C is one of the most common causes of hepatic fibrosis and cirrhosis. It is estimated that up to 3% (180 million people) of the world's population is affected by this disease. Hepatitis C is estimated to result in 366,000 deaths annually worldwide. Forty Nine percent of the population of Malkani Sharif is affected with Hepatitis C virus. It was a cross-sectional descriptive study to determine the causes of hepatitis C in Malkani Sharif, union council Pangrio, is situated at GPS Coordinates: 68.83982, 24.65922. During April to June 2011, Two Hundred patients who were already diagnosed cases of Hepatitis C and having their PCR blood reports, were included in the study. A standardized questionnaire was developed for analyzing the main causes of Hepatitis C among them. The major causes seen were sharing of razors (91%), usage of used syringes (85%), blood transfusion (46%) and positive family history of Hepatitis C (31%).

Introduction

Chronic Hepatitis C is one of the most common causes of hepatic fibrosis and cirrhosis with the World Health Organization, estimating that up to 3% (180 million people) of the world's population is affected (WHO, 2008). Hepatitis C is estimated to result in 366,000 deaths annually worldwide (Perz *et al.*, 2006). HCV infection is associated with liver steatosis, fibrosis, cirrhosis, and hepatocellular carcinoma (HCC) (Negro and Sanyal, 2009). Following initial infection, approximately 80% of people do not exhibit any symptoms. Those people who are acutely symptomatic may exhibit fever, fatigue, decreased appetite, nausea, vomiting, abdominal pain, dark urine, grey-colored feces, joint pain, and jaundice (yellowing of skin and the whites of the eyes). When a chronically infected person develops symptoms, it may indicate advanced liver disease (http://www.who.int/vaccine_research/diseases/viral_cancers/en/index2.html. Accessed 2 Feb 2010).

About 10-20% of chronically infected people will develop liver cirrhosis and 1-5% will develop hepatocellular carcinoma within 20-30 years of infection (MMWRRR, 1998). As a result, chronic Hepatitis C infection is now the leading indication for liver transplantation (US Dept Health & Human service, 2005) and has the potential to result in a substantial amount of premature mortality (Wise *et al.*, 2008).). The Hepatitis C virus is usually detectable in the blood by Polymerase Chain Reaction (PCR) within one to three weeks after infection, and antibodies to the virus are generally detectable within 3-15 weeks ([http://en.wikipedia.org/Hepatitis C](http://en.wikipedia.org/Hepatitis_C) (<http://www.who.int/mediacentre/factsheets/fs164/en/index.html>). HCV exhibits molecular heterogeneity and is grouped into six genotypes, which displays different geographical distribution and response to treatment (Simmonds, 2004).

HCV subtypes 1a and 1b are the most common genotypes in the United States. These subtypes are also predominating in Europe. The predominated subtype reported from Japan is subtype 1b that is responsible for up to 73% of cases of HCV infection. HCV subtypes 2a and 2b are relatively common in North America, Europe and Japan and subtypes 2c in found commonly in Northern Italy. HCV genotype 4 appears 2b prevalent in North Africa and the Middle East and genotypes 5 and 6 seem to be confined to South Africa and Hong Kong respectively. In Pakistan genotype 3a is the most prevalent genotype and more than 86% patients with genotype 3a received multiple injections. It is quite possible that this type was spread in Pakistan by doctors, vaccination teams and other medical persons using non-disposable syringe before 1990 when one syringe was used for injections to all attended patients. This type of practice is still there in the rural areas of the country. This observation is supported by a study where subtype 3a appeared to be prevalent among injection drug users and it is believed that it was introduced into North America and the United Kingdom with the widespread use of heroin in the 1960s (Pawlotsky *et al.*, 1996). Further, it has also been reported that HCV genotype 3a is particularly prevalent in intravenous drug abusers in Europe and the United States (Pawlotsky *et al.*, 1995). Unnecessary injections are given commonly in Pakistan out of the prevalent view in the population that injected medicines are more effective than oral medications (Janjua *et al.*, 2006; Altaf *et al.*, 2004). The international literature suggests that the sexual transmission of HCV is very low (Vandelli *et al.*, 2004; Alary *et al.*, 2005). Several studies have shown the transmission from mother to baby in the womb or during the process of birth and this risk of parental infection for HCV was documented to range from 3-15% in different populations. This transmission was believed to occur in utero, as a consequence of a high viral load in mother (Airoldi *et al.*,

2006; Yeung *et al.*, 2001). Multiple observational studies have proved that breastfeeding is safe and not an additional risk for infection transmission (Ohto *et al.*, 1994; Spencer *et al.*, 2003).

According to a local community organization (CO), large number of people is suffering from Hepatitis in Union Council Khairpur and Pangrio, Taluka Tandobhago, District Badin. Above mentioned CO contacted Sindh Environment Protection Organization (SEPO) to help the villagers. SEPO with its core team (equipped with technical support) visited the union council Khairpur and Pangrio and finally selected a village named 'Malkani Sharif' for research on Hepatitis C because huge number of villagers seemed to be affected with this disease and the cause of this high prevalence of Hepatitis C was unknown there. During July 15th 2010 to January 15th 2011 only in Malkani Sharif 60 out of the total population of 1400 person (i.e. 4.28%) died because of Hepatitis infection which depicted an alarming situation. Despite of this alarming situation and high mortality rate this village was chosen. No step has taken to prevent or to alleviate the situation neither by government nor by any health organization.

Materials and Methods

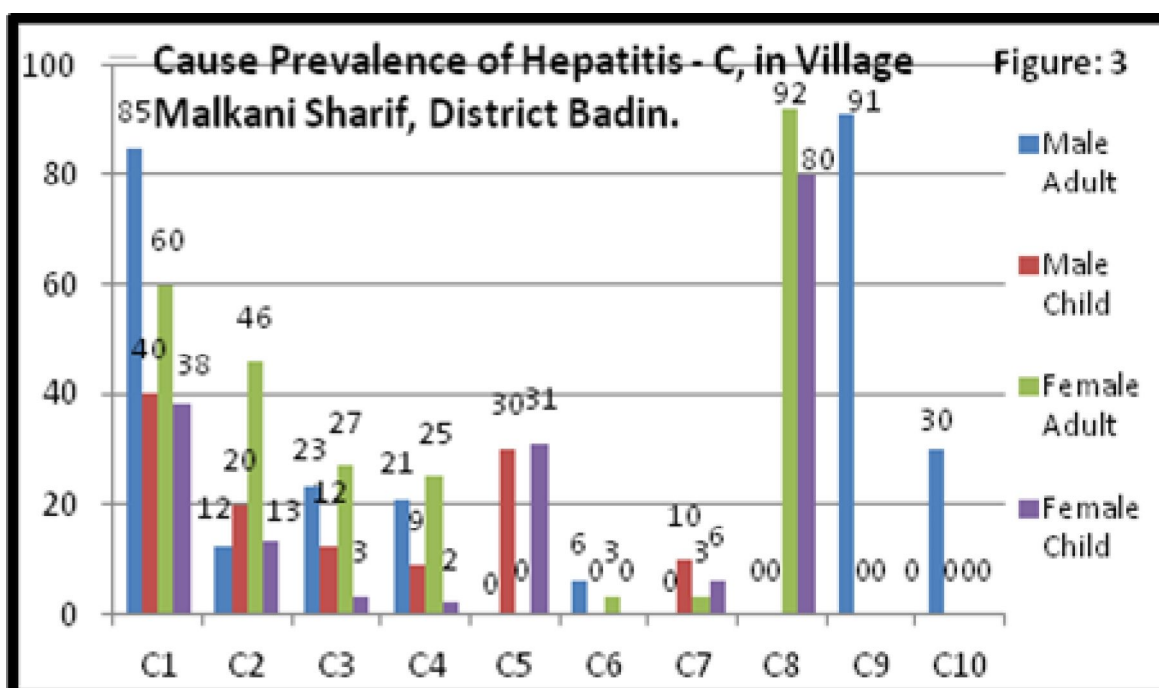
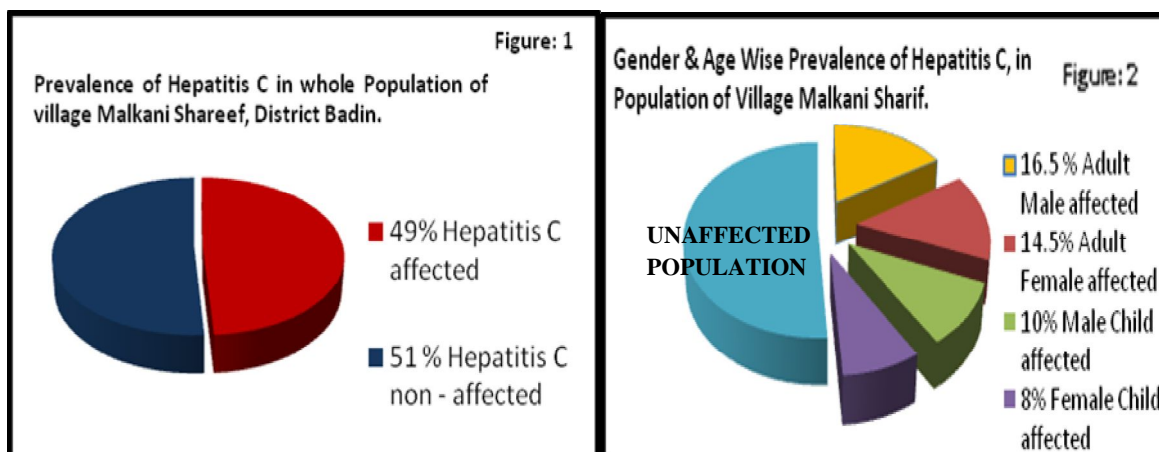
A qualitative, observational, analytical, descriptive and cross-sectional study conducted at Village Malkani Sharif, Union Council Pangrio; district Badin during April to June 2011. 200 patients consisted of 50 adult males (above 18 years), 50 adult females (above 18 years), 50 male children (below 18 years) and 50 female children (below 18 years) who were already diagnosed cases of Hepatitis C and having their PCR blood reports were included in the study through a simple random probability sampling technique. A standardized questionnaire was developed for analyzing the main causes of Hepatitis C among them. Each questionnaire consisted of patient's bio-data and 10 close ended questions both in English and Sindhi. Consent was taken from all patients included in the study and from Sardar Ajmal Khan Laghari, the head of the village before starting the study. They were explained the purpose of research and were assured that after this research a laboratory will be established in their village for their free blood testing, free medical camps and awareness programs about Hepatitis will be initiated in their village and other villages in their district. The patients were then divided into 4 groups on the basis of their gender and age. A detailed history was taken from all the patients included in the study to analyze the cause of this high prevalence of Hepatitis C in the region and then the questionnaires were filled by the participant herself with the help of two translators provided by the SEPO. The data was then entered and analyzed by using SPSS version 17 (statistical analysis program).

District Badin (Sindh) is one of the most infected districts throughout the country. The situation of Hepatitis C in this area is very critical. According to our analysis 49% of the population of Malkani Sharif is affected with Hepatitis C virus as shown in Figure-1. Among which the adult male group has high prevalence i.e. 16.5% followed by adult female group with 14.5% as shown in Figure-2. The major cause seen in adult male group was sharing of razors (91%), usage of used syringes (85%) whereas in adult female group usage of used syringes (60%) and blood transfusion (46%) were the major possible causes of acquiring Hepatitis C as shown in Figure-3.

The piercing ratio was also very high in females both adult and children but the risk of transmission of Hepatitis C virus from piercing is very low. The prevalence of Hepatitis C among male children was 10% with major cause of usage of used syringes (40%) followed by positive family history of Hepatitis C (30%) as shown in Figure-3. The female children group is the least infected group 8% as shown in figure 2. The main causes observed in this group were also the usage of used syringes (38%) and positive family history of Hepatitis C (31%) as shown in figure-3.

Discussion

Hepatitis C is an infectious disease affecting the liver caused by a small 30-38 nm, enveloped, single stranded RNA virus of the family Flaviviridae, genus Hepacivirus. Hepatitis C is often asymptomatic but chronic infection can progress to fibrosis and cirrhosis. The spread of Hepatitis C virus is through blood to blood contact. No vaccine exists to prevent HCV infection, unlike those for hepatitis A and B virus. An estimated 270-300 million people are infected with Hepatitis C worldwide. HCV infection is found worldwide. According to WHO, countries with high rates of chronic Hepatitis C are Egypt (22%), Pakistan (4.8%) and China (3.2%) (http://www.who.int/vaccine_research/diseases/viral_cancers/en/index2.html. Accessed 2 feb 2010).



Cause indicators: C1, Usage of used syringes; C2, + ve blood transfusion history; C3, + ve past surgical history; C4, + ve past dental history; + ve, Family history of hepatitis; C6, I/v drug abuse; C7, Tattoo; C8, piercing; c9, Sharing of razors; C10, Shaving by barber with used blade.

The main mode of transmission in these countries is attributed to using unsafe injections and using contaminated equipments. Pakistan Medical Association (PMA) has estimated that 12% or 19 million people are suffering from hepatitis in Pakistan. 7% of the affected individuals have hepatitis C. This chronic disease is increasing day by day in our country. 70% of people of Pakistan belong to the rural area and are living in villages where literacy rate is very low and therefore the villagers do not have any information regarding this disease. The people living in the rural areas due to their low socio economic status cannot afford the diagnostic and screening tests.

The virus is most commonly transmitted through contaminated blood transfusions, blood products, organ transplants, injections given with contaminated syringes, needle-stick injuries in health-care settings, intravenous drug abuse, being born to an HCV-infected mother and sharing of personal items contaminated with infectious blood. It is less commonly transmitted through sex with an infected person (http://www.who.int/vaccine_research/diseases/viral_cancers/en/index2.html. Accessed 2 feb 2010). Hepatitis C is not spread through breast milk, food or water or by casual contact such as hugging, kissing and sharing food or drinks with an infected person (http://www.who.int/vaccine_research/diseases/viral_cancers/en/index2.html. Accessed 2 Feb 2010; Vandelli *et al.*, 2004). Diagnosis of acute infection is often missed because the infected person has no symptoms. Common methods of antibody detection cannot differentiate

between acute and chronic infection. The presence of antibodies against HCV (anti-HCV) indicates that a person is or has been infected.

The risk of getting Hepatitis C infection can be reduced by avoiding unnecessary and unsafe injections, unscreened blood transfusions, use of intravenous drugs and sharing of injection equipment, unprotected sex with HCV-infected persons, sharing of sharp personal items (e.g., razors, scissors, nail-cutters etc) that may be contaminated with infected blood, tattoos, repeated piercing and acupuncture performed with contaminated unsterilized equipments.

The studies that specified the venue of tattooing and/or piercing showed no definitive evidence for an increased risk of HCV infection when tattoos and repeated piercing were received in professional parlors. However, the risk of HCV infection is significant, especially among high-risk groups (adjusted odds ratio, 2.0-3.6), when tattoos are applied in prison settings or by friends. Prevention interventions are needed to avoid the transmission of hepatitis C from tattooing and piercing in prisons, homes, and other potentially non-sterile settings (Tohme and Holmberg, 2012).

The issue of post-disaster management and care of the affected is equally important in addressing the prevention of infection and blood-borne diseases (Waring and Brown, 2005; Aghababian and Teuscher, 1992; Bissell, 1983). Displaced populations in camp settings are at high risk of infectious diseases owing to a large array of risk factors including inadequate shelter, overcrowding, inadequate quantity and quality of food, poor sanitation, poor personnel hygiene, economic and environmental degradation, compromised healthcare practices, and movement of people from areas of low to high endemicity (Wilder-Smith, 2005).

The secondary or tertiary prevention can be provided by giving proper awareness and counseling on options for care and treatment, immunizing with hepatitis A and B vaccine to prevent co-infection from these hepatitis viruses, giving early and appropriate medical management including antiviral therapy if appropriate and get regular monitoring for early diagnosis of liver disease.

Conclusion

Hepatitis C is a major public health problem and a leading cause of chronic liver disease. Village Malkani Sharif, union council Pangrio, district Badin is highly affected with Hepatitis C and usage of used syringes is the leading cause of HCV infection there. Persons found to be HCV-infected need to be counseled regarding prevention of the spread of the virus to others. All infected persons should be informed that transmission to others can occur through contact with their blood and that they should therefore take precautions against possibility of such exposure.

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