

CAUSES OF PREVALENCE OF HEPATITIS C IN GOTH BAKHSHOO KHAN LUND, DISTRICT BADIN OF SINDH, PAKISTAN

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Abstract

A cross-sectional and descriptive study was carried out during January to March 2011 to investigate the causes of Hepatitis C in Goth Bakhshoo Khan Lund (GPS Coordinates: 68.83982, 24.65922), union council Kairpoor, District Badin, Pakistan. Fifty three *per cent* of the population of Goth Bakhshoo Khan Lund was affected with the prevalence of Hepatitis C. One 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 cause seen in adult male group was sharing of razors (88%) and usage of used syringes (84%) whereas in adult female group usage of used syringes (72%) and blood transfusion (40%) were the major possible causes of acquiring Hepatitis C. The prevalence of this disease was 12% in male children and 7 % in female children. This appeared to be more probable due to the usage of used syringes (44%) and the family history (36%) in case of male children and more due to ear and nose piercing (80%) than use of used syringes (60%) in female children. Goth Bakhshoo Khan Lund, union council Kairpoor; district Badin is highly affected with Hepatitis C and usage of used syringes is the leading cause of HCV infection there.

Introduction

Chronic Hepatitis C is one of the most common causes of hepatic fibrosis and cirrhosis. Pawlotsky *et al.* (1995) stated that 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 the use of non-disposable syringes 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 Pakistan. 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 disclosed that it has also been reported that HCV genotype 3a is particularly prevalent in intravenous drug abusers in Europe and the United States. Altaf *et al.* (2004) have mentioned several studies about 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. Simmonds (2004) discussed that 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 is 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. Airoidi *et al.* (2006) multiple observational studies have proved that breast feeding is safe and not an additional risk for infection transmission. Janjua *et al.* (2006) noted that unnecessary injections are given commonly in Pakistan out of the prevalent view in the population that injected medicines are more effective than oral medications. Perz *et al.* (2006) stated that Hepatitis C is estimated to result in 366,000 deaths annually worldwide. Wise *et al.* (2008) disclosed that 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. HCV exhibits molecular heterogeneity and is grouped into six genotypes, which displays different geographical distribution and response to treatment. The World Health Organization (2008) has estimated that up to 3% (180 million people) of the world's population is affected. Negro *et al.* (2009) stated that HCV infection is associated with liver steatosis, fibrosis, cirrhosis, and hepatocellular carcinoma (HCC). 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. About 10-20% of chronically infected people will develop liver cirrhosis and 1-5% will develop hepatocellular carcinoma within 20-30 years of infection. As a result, chronic

Hepatitis C infection is now the leading indication for liver transplantation and has the potential to result in a substantial amount of premature mortality.

According to a local community organization (CO), The Founder's Development Organization, informed the author that a huge number of people are suffering from Hepatitis in Union Council Kairpoor and Pangrio Taluka Tandobhago, District Badin of Sindh. On behalf of author, the said CO contacted with Sindh Environment Protection Organization (SEPO) to help the villagers. After the recommendation of Prof. Dr. Mumtaz uddin Haider, principal, JMDC, and chairman of SEPO advisory board the SEPO's core team (equipped with technical support) under the author's leadership visited the union council Kairpoor and finally selected a village named 'Goth Bakhshoo Khan Lund' for research on Hepatitis C because large number of villagers appeared to be affected with Hepatitis C and the cause of the prevalence of this disease was unknown there. During the period from January to June 2010 only in Goth Bakhshoo Khan Lund 72 out of the population of 1600 persons (i.e. 4.5%) have died because of Hepatitis, an alarming situation. Unfortunately, no measures to prevent or alleviate the causes have been taken up neither by government nor by any health organization.

Materials and Methods

A qualitative, observational, analytical, descriptive and cross-sectional study conducted at Goth Bakhshoo Khan Lund, Union Council Kairpoor; district Badin during January to March 2011. One hundred patients consisted of 25 adult males (above 18years), 25 adult females (above 18years), 25 male children (below 18years) and 25 female children (below 18years) who were already diagnosed cases of Hepatitis C. The PCR blood reports of the cases 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 before starting the study. They were explained the purpose of the research. 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.

Results

The situation of Hepatitis C in the area of District Badin is very critical. According to our analysis 53% of the population of Goth Bakhshoo Khan Lund is affected with Hepatitis C virus (Fig. 1); among which the adult male group has high prevalence i.e. 20% followed by adult female group with 14% (Fig. 2). The major cause seen in adult male group was sharing of razors (88%) and use of used syringes (84%) whereas in adult female group usage of used syringes (72%) and blood transfusion (40%) were the major possible causes of acquiring Hepatitis C as shown in Table 1. The tendency of ear and nose piercing was although quite high in females both adult and children, the overall prevalence of the disease was as low as 7% in female children. The prevalence of Hepatitis C among male children was 12% with major cause of usage of used syringes (44%) followed by positive family history of Hepatitis C (36%) as shown in Fig. 3. The female children group is the least infected group (7%) (Fig. 2) The main causes observed in this group were also the usage of used syringes and positive family history of Hepatitis C.

Discussion

Hepatitis C is an infectious disease affecting the liver cause by a small 30-38nm, 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%).

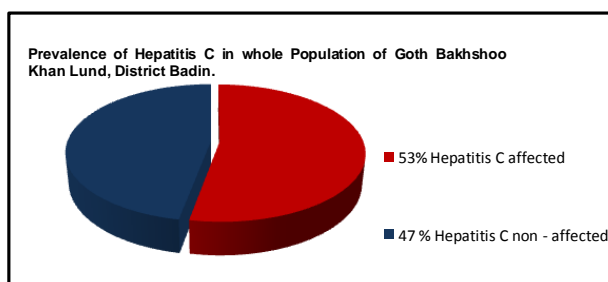


Fig. 1

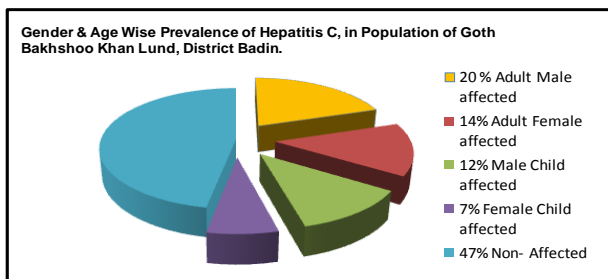


Fig. 2

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. Seven *per cent* of the affected individuals have hepatitis C. This chronic disease is increasing day by day in our country. Seventy percent of the people of Pakistan belong to the rural area 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. 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. 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.

Table 1. Cause prevalence of Hepatitis-C in Goth Bakhshoo Khan Lund, District Badin, Sindh.

Causes	Male Adult		Male Child		Female Adult		Female Child	
	Yes	No	Yes	No	Yes	No	Yes	No
C1	21 (84%)	4 (16%)	11 (44%)	14(56%)	18 (72%)	7(28%)	15 (60%)	10(40%)
C2	8 (32%)	17(68%)	6 (24%)	19(76%)	10 (40%)	15(60%)	7 (28%)	18(72%)
C3	5 (20%)	20(80%)	2(8%)	23(92%)	6(24%)	19(76%)	1(4%)	24(96%)
C4	6(24%)	19(76%)	2(8%)	23(92%)	5(20)	20(80%)	1(4%)	24(96%)
C5	1(2%)	24(96%)	9(36%)	16(64%)	1(4%)	24(96%)	10(40%)	15(60%)
C6	2(8%)	23(92%)	0	25(100%)	1(4%)	24(96%)	0	25(100%)
C7	1(4%)	24(96%)	2(8%)	23(92%)	1(4%)	24(96%)	2(8%)	23(92%)
C8	0	25(100%)	0	25(100%)	24(96%)	1(4%)	20(80%)	5(20%)
C9	22(88%)	3(12%)	0	25(100%)	0	25(100%)	0	25(100%)
C10	7(28%)	18(72%)	0	25(100%)	0	25(100%)	0	25(100%)

*, Percentage in parenthesis. Key to the acronyms: C1, Usage of used syringes; c2, + Ve blood transfusion history; C3, + Ve post surgical history; C4, + Ve post dental surgery history; C5, + Ve Family history of hepatitis C; C6, I / V drug abuse; C7, Tattoo practice; C8, Ear / Nose piercing; C9, Sharing of razors; C10, Shaving by barber with used blades.

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, ear and nose piercing and acupuncture performed with contaminated unsterilized equipments.

The issue of post-disaster management and care of the affected is equally important in addressing the prevention of infection and blood-borne diseases. The displaced population in camps is 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 prevalence.

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. Goth Bakhshoo Khan Lund, union council Kairpoor, district Badin of Sindh 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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