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Prevalence of Hepatitis B and C Infection in Havelian City, Khyber: Pakhtunkhwa, Pakistan

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Abstract

The aim of the present study was to estimate the frequency of HBV and HCV in the patients of Havelian City. Two hundred Eighty seven (287) patients were diagnosed for hepatitis with a time period of six months from (1st Jan, 2016 to 30th June, 2016). All the blood samples were examined by Immune-Chromatographic Kit (ICT). Out of 287 patients, a total 18 (18.14%) patients were reported positive for HBV and HCV. Among these patients, 8(6.39%) and 10(11.73%) were positive for HBV and HCV respectively. In this study it was reported that that primary high prevalence of HBV and HCV is in majority due to lack of public health awareness on transmission of disease.

Keywords: Hepatitis B, Hepatitis C, Antigen, ICT, Tehsil Havelian

1. Introduction

Different liver attacking viruses (Hepatitis A, B, C, D, E, and G) are mainly responsible for the development of viral Hepatitis. Viral hepatitis is regulated as are a major cause of mortality and morbidity [1]. Hepatitis B virus has recently been recognized as a universally established health challenge due to its worldwide distribution, complications and chronic persistence. Hepatitis C virus was first identified in 1988 [2]. Pakistan has one of the world's highest fertility rates, exceeding four children per woman [3]. Its approximately 800 000 sq. km are slightly less than twice the size of the state of California in the USA and Pakistan is larger than either Turkey or Chile [4] and [5]. Pakistan is divided into four provinces, Punjab, Sindh, Northwest Frontier Province (NWFP), and Balochistan, as well as federally administered areas including the capital (Islamabad), Federally Administered Tribal Areas (FATAs), and the western third of Jammu and Kashmir [6]. The major modes of HCV transmission in Pakistan are use of contaminated needles and instruments in medical practice, unsafe blood [7]. Pakistan is highly endemic with HBV [8] with nine million people infected with HBV [9] and its infection rate is on a steady rise [10]. The reason may be the lack of proper health facilities, poor economic status and less public awareness about the transmission of major communicable diseases including HBV, HCV and HIV [11]. India, Pakistan, and Bangladesh have the highest rates of infection, with prevalence ranging from 2 to 8% in different population groups. [12] According to the most recent World Health Organization estimate, two billion people worldwide have serologic evidence of present HBV infection, and 360 million are chronically infected and at risk for HBV-related liver disease. [13, 14] Approximately one third of all cases of cirrhosis and half of these cases of hepatocellular carcinoma can be attributed to chronic HBV infection. HBV is estimated to be responsible for 500,000–700,000 deaths each year. [15] Many researchers have been conducted to study the prevalence of HBV and HCV co-infection among HIV-infected individuals and intravenous drug users globally. [16] In view of this, the present study was conducted to check the prevalence of HBV and HCV in Havelian City, Khyber-Pakhtunkhwa, Pakistan.

2. Materials and Methods

2.1 Collection of Samples

A survey was conducted in Civil Hospital Havelian KPK Pakistan from 1st January 2016 to 30 June 2016 in order to identify infected patients with HBV and HCV. In total 287 blood samples were collected from Hepatitis B and C infected patients. Number of 235 females and 35 males were interviewed in order to collect information regarding their, age, gender economic conditions and marital status.

After getting history each individual was subjected to laboratory tests as follows. Five (5) ml of venous blood sample was collected under strict aseptic conditions from ante cubical vein in a sterile disposable plastic syringe, which was then transferred to a plastic tube without anticoagulant and allowed to clot at room temperature. The blood was then centrifuged after clotting 30 mints to extract serum. Serum Alanine amino transferase (ALT) level was estimated on each sample before storage. Afterwards, the samples were stored at -20 °C till further use.

2.2 Immuno-Chromatographic Tests (ICT) SD Device

ICT was used to analyze blood samples. In accordance with the instruction given by the manufactures, 287 serum samples were tested for Hepatitis Surface Antigen and Anti-HCV

through Immuno-Chromatographic.

The ELISA technique is was based upon the theory that antigen or antibodies which were when the solid phase can be detected by complementary antibody or antigen. These complementary Abs were labeled with an enzyme that has the ability to disintegrate a chromogenic substrate. When substrate of that enzyme was provided the presence of antigen or antibody can be confirmed by the production of a colored end product.

3. Results

Out of 287 patients, a total 18 (18.14%) patients were reported positive for HBV and HCV. Among these 8(6.39%) and 10(11.73%) were positive for HBV and HCV respectively (Table 1; Fig. 1).

Table 1: Gender wise prevalence of HBV and HCV.

Gender	Total No of sample	No of positive sample	No of positive sample HBV	No of positive sample HCV
Male	52	7(13.46%)	2(3.84%)	5(9.61%)
Female	235	11(4.68%)	6(2.55%)	5(2.12%)
Total	287	18 (18.14%)	8(6.39%)	10(11.73%)

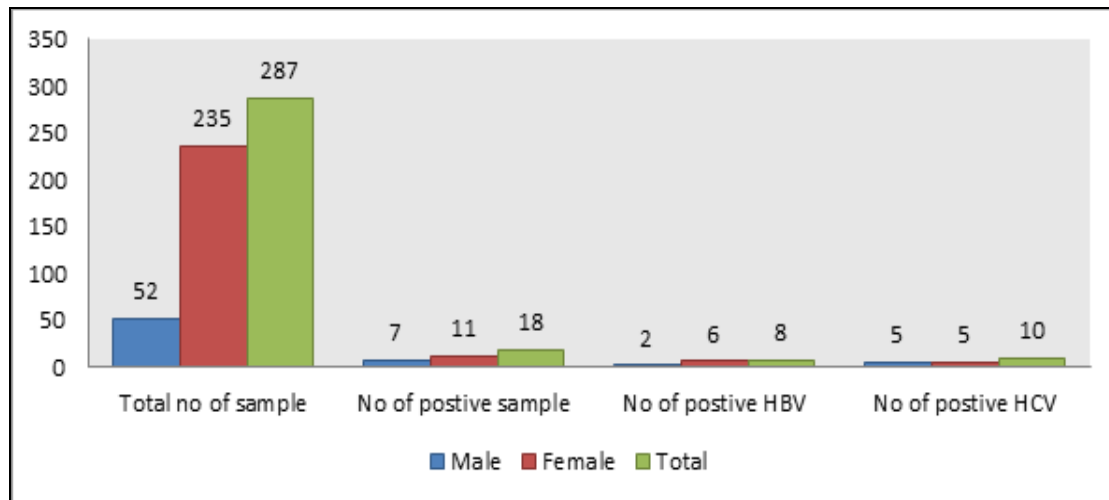


Fig 1: Gender wise prevalence of HBV AND HCV

Table 2: Age group wise distribution of Hepatitis B & Hepatitis C virus during current study (n=287)

Age group	Total No of samples (No=287)	Positive Cases	Percentage (%)
5-20 years	82	4	4.87%
21-40 years	165	9	5.45%
41-60 years	27	3	11.11%
>60 years	13	2	15.38%

A total number of two hundred Eighty-seven (287) patients were included in the present study that were divided into different four groups on the basis of age, i.e. (5-20), (21-40), (40-60) and (> 60) (Table.2: Fig.2). Out of the total 287 cases, 82 candidates were included in the group (5-20) in which 4.87% (4) cases were positive for Hepatitis B and Hepatitis C virus, 165 were included in group (21-40) in which 5.45% (9) were positive, 27 were included in group (41-60) in which 11.11% (3) were Hepatitis B and Hepatitis C virus positive and 13 cases were included in group (> 60) in which 15.38% (2) cases were positive for Hepatitis B and Hepatitis C virus. Majority of the patients were seen between 21 to 40 years of age.

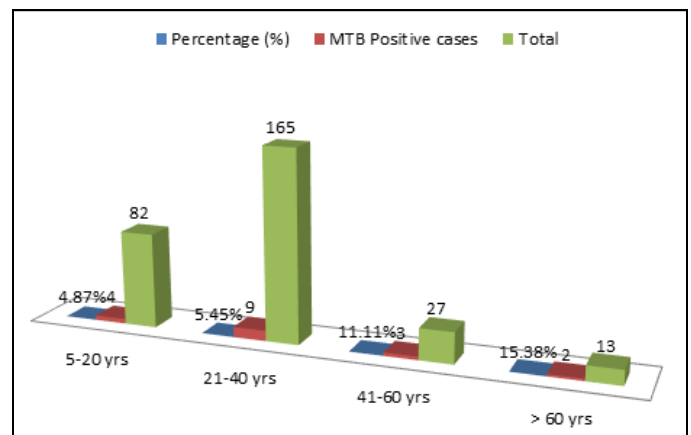


Fig 2: Age group wise distribution of Hepatitis B & Hepatitis C virus in the study group (n=287)

4. Discussion

Viral Hepatitis is a blood transmissible disease its rate is higher in Pakistan due to unavailability of proper treatment, no proper sterilization, and unawareness of peoples. Viral hepatitis is the major health problem in the developing countries today including Pakistan. [17] Hepatitis B and C infections are blood borne and are transmitted through

unscreened blood transfusions, inadequately sterilized invasive medical devices and reuse of syringes and razors^[18]

The contaminated dental instruments also play an important role in HBV infection because of the presence of HBsAg in the saliva of acute and chronic hepatitis B patients. In the present study the hepatitis B and C present in 18 (18.14%) cases with patients having HCV as 8(6.39%) and HBV in 10(11.73%) cases. As compare to present study the Prevalence of Hepatitis B in different parts of our country is among 2.11% to 5.46%^[19] Another study in District Dir (2.6%) and (16.2%) and highly founded (17.8%) in males followed by females (14.1%).^[20]

Blood screening method is effective in reduce the risk of HBV, HCV infections but still there is dire need of using more exact viral detection technique, in order to treat hemophilia patients with HBV, HCV infections.

5. Conclusion

The present study showed that Hepatitis B prevalence was high as compared to Hepatitis C. In addition, among males high prevalence was recorded than females. It is suggested that vast care should be implemented during surgical measures or treatments and blood transfusions. Further awareness movement against Hepatitis B and C infections should be approved to instruct the common people on the risk factors and rout of transmit ion in order to decrease the rate of infection.

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