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Hepatitis B and C Infection in Gujrat, Pakistan: A Cross Sectional Study

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ABSTRACT

Objective: This study was aimed to investigate the prevalence of Hep B and C, gender distribution, route of transmission, family history of Hepatitis and treatment options.

Study Design and Setting: This was a cross sectional study conducted at Dr Mujahid's Lab Bhimber road Gujrat, Pakistan.

Methodology: A total of 1181 individuals were included in this study. Among these 1181 individuals, 528 individuals were screened for hepatitis B and C by immuno chromatographic test (ICT) at Dr. Mujahid's Lab, Bhimber road, Gujrat while rest of the 653 individuals were asked about the hepatitis status by using a well-structured questionnaire. Other related questions were also included like age, sex, marital status, mode of transmission, and about treatment to evaluate the risk factors associated with disease. Data was analyzed by using SPSS 17.

Results: Prevalence of hepatitis B and C was 1.37% and 8.26% in surveyed while 1.5% and 9.1% in screened population of district Gujrat respectively. In surveyed hepatitis C patients, 72% were females and 28% were males. Among these, 91% patients were married and only 9% were unmarried. In case of hepatitis C, 9% stated polluted water, 9% medicines, 5.5% family history, 3.7% barber, 2% endemic, 2% dental surgery, 2% unhygienic food and 2% typhoid fever as a cause of infection while for hepatitis B, 33% individual's stated low standard hoteling as a cause of infection. Overall, incidence of hepatitis was higher in screened individuals as compared to surveyed.

Conclusion: This study concluded that hepatitis prevalence is high in district Gujarat. Moreover, Hepatitis C is more frequent than hepatitis B in this area.

Key Words: Hepatitis B, Hepatitis C, Prevalence

INTRODUCTION:

Hepatitis B and C infections appeared as a major health issues globally including Pakistan.[1] These viruses are one of the major causes of severe liver disorder, counting cirrhosis-related end stage liver disease and hepatocellular carcinoma (HCC).[2] Hepatitis B virus is infectious and spread chiefly by blood, body-fluid contact, and vertical transmission.[3] HBsAg in serum is the primary sero indicator of active HBV infection, whichever acute or chronic.[4] HCV infection is also widespread worldwide. It is transmitted in similar way to HBV and it is expected that approx 3% of the world's inhabitants carry HCV, with 3 to 4 million new infections every year.[5] Lack of information and health knowledge regarding safe dental treatments and general surgeries are the main threats for both hepatitis B and C transmission in Pakistan. There is a need to arrange awareness campaigns for health care professionals and general population to reduce this burden in our country.[6]

Both hepatitis B and C are prevalent in Pakistan. On the whole, prevalence varies between 2.6% and 5.3% for HBsAg and anti-HCV antibodies in Pakistan.[7] The estimated risk of HCV in Pakistan is 2.4-6.5%.[8] In case of hepatitis C, initially there are no symptoms but its infection can result in chronic liver disease which may cause liver fibrosis and result cirrhosis. The end result in some cases is hepatocellular carcinoma which appears several years later.[9]

Transmission of HBV is usually from contact with infected blood or blood products. It such, reuse of contaminated syringes and needles, vertical transmission, sexual contact and blood transfusion.[10] Hepatitis C also spreads via direct contact with the blood of an infected person. Earlier studies of clinical investigations had identified that transfusion of blood products is the main risk factor in the conduction of HCV infection.[11] Therefore, this study was aimed to investigate the prevalence of Hep B and C, gender distribution, route of transmission, family history of Hepatitis and treatment options.

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METHODOLOGY:

This study was consisted of two parts, 1st part was a survey with questionnaire Performa for patients. A total of 653 Performa's were filled randomly by individuals from district Gujrat, Pakistan. Informed consent of individuals including name, sex, age, address, contact number, NIC number along with hepatitis B and C related patient history such as route of infection, duration of disease, transfusion history, family hepatitis history, diabetes, obesity, injected drug users, surgery, vaccination status in case of hepatitis B, treatment type, treatment duration and different diagnostic tests related hepatitis were collected.

The 2nd part was consisted of screening 528 individuals randomly for hepatitis B and C by ICT (Acu-check) for further evaluation of hepatitis prevalence in district Gujrat. Three ml of blood was collected from each individual by disposable syringe and placed for clotting. Blood was centrifuged for three minutes at 5000 rpm to separate serum. Serum was collected in new apondrofs for qualitative detection of hepatitis B virus surface antigens and hepatitis C virus antibodies by immuno chromatographic assay. The data was enetered on SPSS version 17 and P value <0.05 was considered as statistically significant.

RESULTS:

A total of 653 individuals were recruited for part 1 of this study from Gujrat city and territories to estimate the prevalence of hepatitis in district Gujrat. Out of 653 surveyed individuals 371 were females and 282 were males. All the individuals were categorized in two age groups (Group 1: =40 years, Group 2: >40 years). Only 63 individuals were positive for hepatitis with 9 (1.37%) individuals positive for hepatitis B and 54 (8.26%) for hepatitis C.

Another 528 healthy individuals were screened for hepatitis by ICT to estimate its frequency in general population. There were 57% males and 43% females of screened individuals. A total of 10.6% individuals were positive for hepatitis including 9.1% positive for hepatitis C and 1.5% positive for hepatitis B.

In case of surveyed individuals 442 were married and 211 were unmarried. Out of 442 married individuals, 51 (11.53%) were positive for hepatitis including 49 (11%) positive for hepatitis C and 2 (0.45%) positive for hepatitis B. In unmarried individuals, 12 (5.6%) were positive for hepatitis with 5 (2.3%) positive for hepatitis C and 7 (3.3%) positive for hepatitis B. The risk of getting hepatitis seems to be four times higher in married people (Table 2).

Liver enzymes were elevated in both gender for hepatitis B and C. In hepatitis B patients, 55% individuals had elevated ALT while 41% individuals with hepatitis C showed elevated ALT levels. Elevated AST levels were same for both hepatitis B and C. In both types of hepatitis patients, up to 15% individuals were diabetic while 22% were obese with higher percentage in case of hepatitis C for both cases. Injected drug users were only 11% and 4% for hepatitis B and C respectively. Blood transfusion rate was very low in both hepatitis B and C cases (Figure 1).

Mostly patients did not know how they infected as only 33% and 35% individuals provide supposed information about their route of infection of hepatitis B and C respectively while rest of the patients have no idea about their infection route. In both hepatitis B and C, 33% patients had family history of hepatitis. The household hepatitis contact was 11% and 22% for hepatitis B and C respectively. Only few patients had their spouse infected with hepatitis (Figure 2).

Mostly patients preferred allopathic medicine for hepatitis treatment. As in case of surveyed individuals, more than 75% individuals provide information about allopathic medicine. Only few individuals were using homeopathic medicine hepatitis treatment.

About 11% and 9% patients used both homeopathic and allopathic medicines for hepatitis B and hepatitis C treatment respectively. Some individuals were not familiar with type

Table-1a: Prevalence of hepatitis in screened individuals

Age (Years)	Total positive (%)	HBV positive (%)	HCV positive (%)
Males			
≤40	16(2.45)	6(0.91)	10(1.52)
>40	5(0.76)	0(0)	5(0.76)
Females			
≤40	13(1.99)	1(0.15)	12(1.83)
>40	29(4.44)	2(0.3)	27(4.13)

Table 1b: Prevalence of hepatitis in surveyed individuals

Age (Years)	Total positive (%)	Hepatitis B (%)	Hepatitis C (%)
Males			
≤40	12(2.27)	7(1.32)	5(0.94)
>40	10(1.89)	1(0.18)	9(1.7)
Females			
≤40	13(2.46)	0(0)	13(2.46)
>40	21(3.97)	0(0)	21(3.97)

Table 2: Prevalence of hepatitis B and C in married and unmarried individuals

Marital Status	No. of individuals	Positive	HCV Positive	HBV Positive
Married	442	51 (11.53%)	49 (11%)	2 (0.45%)
Unmarried	211	12 (5.6%)	5 (2.3%)	7 (3.3%)
Total	653	63 (9.6%)	54 (8.2%)	9 (1.3%)

Figure 1- Relationship of hepatitis with Biochemical parameters.

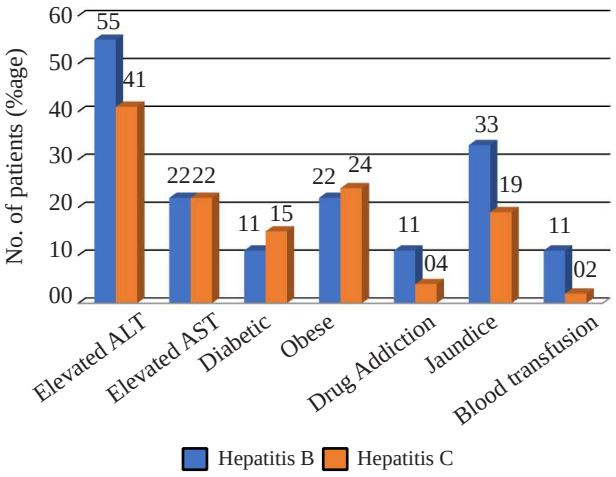


Figure 2- Relationship between hepatitis types with family status

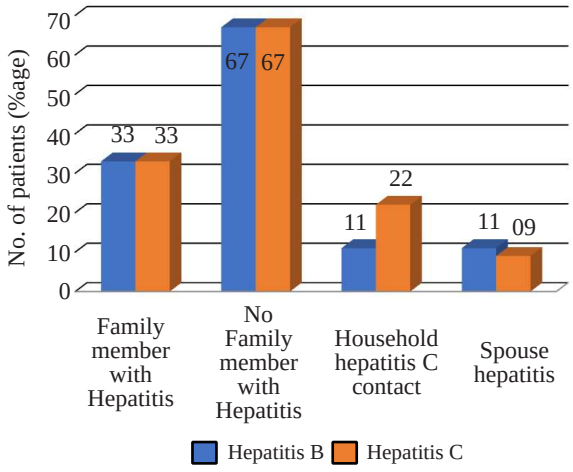
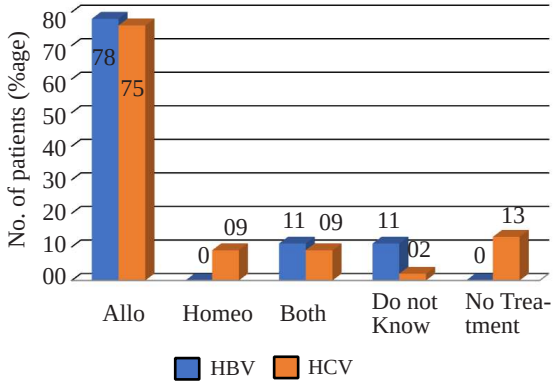


Figure 3- Types of treatment.



of medicine which they used. Surprisingly, 13% patients were not using any medicine for HCV. Only 33% and 31% of surveyed patients were cured in case of hepatitis B and C respectively (Figure 3).

DISCUSSION:

In Pakistan, mostly people are ignorant to health-related issues counting hepatitis B and C infections due to low literacy rate. Most of the HBV and HCV infected patient's diagnosed hepatitis when they visited doctor for other health issue such as dental treatment and surgeries. Similarly, in our survey, mostly patients were unaware of disease and they diagnosed when they came to doctor for some other health problems.

In present study, 1.37% and 1.5% of surveyed and screening individuals had hepatitis B respectively. For hepatitis C, we founded 8.26% and 9% of surveyed and screening individuals correspondingly. These are almost similar to other studies including Khan et al [12] and Basit et al.[13] Basit et al established that 1.3%, 8.4% and 3% for HBV, HCV and co infection of hepatitis B and C respectively. The gender wise hepatitis B distribution was also nearly similar to Basit et al, as he founded 6.3% and 3.7% for males and females while in this study the distribution was 6.7% and 3.3% for males and females respectively. We founded 2.8% and 7.2% hepatitis C male and female patients while Mushtaq et al stated 3.7% and 6.3% hepatitis C male and female's patients respectively[14], indicating an increasing trend of hepatitis C in females.

In present study, males had higher prevalence of hepatitis B which was also established by Wasfi and Sadek, 2011[15] while in case of hepatitis C females had higher prevalence supported by Mushtaq et al. [14] Mushtaq et al also conducted the study in district Gujrat. Individuals >40 years of age had high frequency of hepatitis C than younger individuals. It was reported by many studies that prevalence of hepatitis C rises after 40 years of age.[16,17] We founded similar results for hepatitis C with 61% and 62.5% individuals aged greater than 40 years of surveyed and screening population while hepatitis B contradicted this with 78% and 87.5% individuals aged less than 40 years of surveyed and screening individuals respectively. The prevalence of hepatitis C was higher in married individuals than in unmarried. It was supported by different studies including Adekeye et al and Ayele and Solomon.[18,19] In present study, 91% hepatitis C patients were married while for hepatitis B the result was again contradicted. It might be due to the reason of high number (59%) of individuals with age less than 40 years. The higher prevalence in married people can be due to the pre-exposure of hepatitis which later can be transmitted to spouse or elderly people had less information and knowledge about infectious diseases and their prevention. To reduce the incidence of hepatitis, general screening of blood, awareness about hepatitis B and C transmission and risk factors should be addressed to general population by campaigns.

CONCLUSION:

It was concluded that hepatitis C was more prevalent than hepatitis B in district Gujrat. High prevalence was found for females in case of hepatitis C while for hepatitis B it was vice versa.

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