THE FREQUENCY OF HEPATITIS B & C IN PATIENTS PRESENTING TO KHYBER COLLEGE OF DENTISTRY PESHAWAR

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ABSTRACT

Objective: *To determine the frequency of Hepatitis C in patients and to compare the frequency of Hepatitis C and Hepatitis B patients presenting to Khyber College of Dentistry Peshawar.*

Material & Methods: *A cross-sectional study conducted at Khyber College of Dentistry Peshawar, located in the Khyber Pakhtunkhwa province of Pakistan using convenient sampling technique and documentation review from September 2016 to February 2017.*

Result: *A total of 23,843 patients were tested for Hepatitis C and Hepatitis B in which 541(2.26%) patients were tested positive for Hepatitis C, and 319(1.33%) patients had Hepatitis B virus infection. Out of 541 Hepatitis C positive cases, 38 were in 0-20 year's age group, 241 in 21-40 age group, 229 cases in 41-60 years age group and 33 cases were in above 60 years age group. Results also showed that Hepatitis C is slightly more common in females (52%) as compared to males (48%).*

Conclusion: *The study can be used as a literature or comparison tool to comprehend the prevalence rates in Khyber Pakhtunkhwa Pakistan for future research studies.*

Keywords: *Hepatitis C; Hepatitis B; Frequency; Gender; Age.*

INTRODUCTION

Hepatitis C is an infectious disease caused by the Hepatitis C virus (HCV) the main organ that it effects is the liver[1]. Hepatitis C belongs to the family Flaviviridae. Flaviviridae family name is derived from Latin word "flavus" which means yellow. This name is given because all the viruses of this family can cause jaundice [2].

Hepatitis C virus is one of the most common bloodborne viruses and is associated with significant morbidity and mortality. According to WHO report about 130-150 million people worldwide have chronic Hepatitis C infection and a significant number of those will develop liver cirrhosis or liver cancer. About 0.7 million people die each year from Hepatitis C related liver disease[3]. According to a study approximately there are greater than 170 million people infected chronically and each year 3,50,000 people die due to Hepatitis C infection[4].

HCV is initially screened via Immuno-chromatography (ICT) method which detects anti-HCV antibodies in the blood. This test has a sensitivity of 95% and specificity of 99%. If this test comes out to be positive, infection is confirmed by qualitative measurement of HCV RNA via ELISA. ELISA has a sensitivity of 99.3%. Protocol for exposure to HCV infection in the past six months is that, if ICT test comes out to be negative then ELISA is performed every four to eight weeks for at least six months, or follow up ICT test is performed in twelve weeks [5].

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In the United States, the leading cause of the chronic liver disease is Hepatitis C virus (HCV) infection[6]. In Australia and New Zealand, the total population is more than 24 million, the population having the positive result of Hepatitis C is greater than 0.6 million, the prevalence rate is 2.2% to 3.2%[7].

Hepatitis C virus affects 2.4%-6.5% people in Pakistan. The most common genotype in Pakistan is Genotype 3. Genotype 3 is most responsive to interferon and ribavirin combination therapy. In Pakistan, the leading cause of chronic liver disease and hepatocellular carcinoma is HCV [8].

Between 1990 and 2005 the prevalence and number of people with anti-HCV have increased from 2.3% to 2.8% that is 122 million to 185 million. A high prevalence (>3.5%) has been estimated in Central and East Asia and North Africa/Middle East; moderate prevalence (1.5%-3.5%) in South and Southeast Asia, sub-Saharan Africa, Andean, Central, Southern Latin America, Caribbean, Oceania, Australia, and Central, Eastern, and Western Europe. Asia Pacific, Tropical Latin America, and North America have less than 3.5% prevalence[7].

Complications of HCV affect men in larger number. In males, the progression of Hepatitis C virus (HCV) infection is known to be worse than in females [9]. There is twofold greater progression rate in males as compared to females irrespective of alcohol intake[10], and there is higher HCV clearance rate in females as compared to males[11].

The main risk factors for transmission of Hepatitis C are a blood transfusion, intravenous drug users, surgical or dialysis procedure, needle pricks and vertical transmission from mother to child. Other probable means of transmission are piercing, tattooing and other medical and dental treatments[4].

There is no vaccine available for Hepatitis C, so the primary prevention against Hepatitis C is reducing risks of infection by safe injections and blood transfusion safety[12]. Recently with the advancement in the medical field, many types of medications are available for the treatment of Hepatitis C, these medications are easily tolerated, and treatment regimens are shorter in duration and more effective.Drugs like Pegylated interferon (Peg-IFN), Ribavirin (RBV), Boceprevir, Telaprevir, Simeprevir approved by FDA to treat Hepatitis C [13]. Other newer drugs are being developed like Zepatier[14] and Epclusa (a pill that can be used for all six strains of Hepatitis C) [15].

Epidemics of Hepatitis A and endemic transmission of both Hepatitis B and Hepatitis C have been associated with high risk sexual and drug use behaviour. Vaccine and immunoglobulin preparations have been developed that effectively add in the prevention of Hepatitis A and Hepatitis B. However; no vaccine is available for Hepatitis C, the prevention is dependent on a better understanding of the host and environmental factors to intervene the transmission of the disease [16 21].

In a study conducted in Lahore, risk factors of 144 patients with HCV infection were evaluated. In 72 (50%) of these cases, there was a history of multiple parenteral injections (needle stick). About one-quarter patients (35) cases, had received a blood transfusion in the past. Apparently, no risk factor was associated with 37 (25.7%) cases. These were labelled as endemic, although 5 out of them had a history of contact with family members infected with HCV[17].

The objective of this study is to find the frequency of Hepatitis B & C in patients presenting to Khyber College of Dentistry Peshawar.

MATERIALS AND METHODS

Cross-sectional study was conducted in Khyber College of Dentistry (KCD) Peshawar. Data was collected from 1st September 2016 to 28th February 2017.A Total of 23,843 patients of all ages and both genders were assessed for Hepatitis C and Hepatitis B infection through Immuno-chromatography (ICT) method. The patients' who came to KCD for dental procedures were chosen from the records. Data were then entered into SPSS version 20 and analysed.

RESULTS

Out of total 23,843 tested participants, the frequency of Hepatitis C positive in patients presenting to Khyber College of Dentistry Peshawar was 2.26%(n=541).

According to figure 1, there were 38 HCV positive patients in 0-20 age group, 241 in 21-40 age group, 229 in 41-60 age group and 33 positive patients were aged above 60 years.

According to figure 3, the prevalence of Hepatitis

C was 2.26% as compared to 1.33% of Hepatitis B.

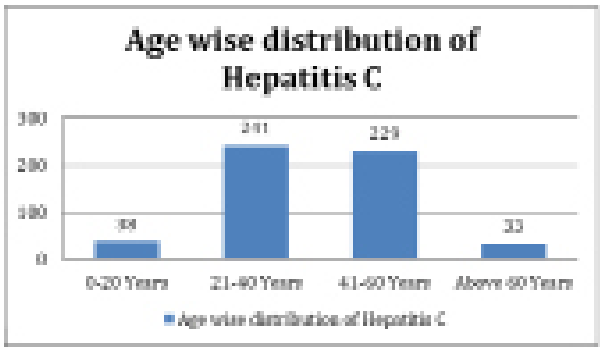

Fig 1. Age wise distribution of Hepatitis C

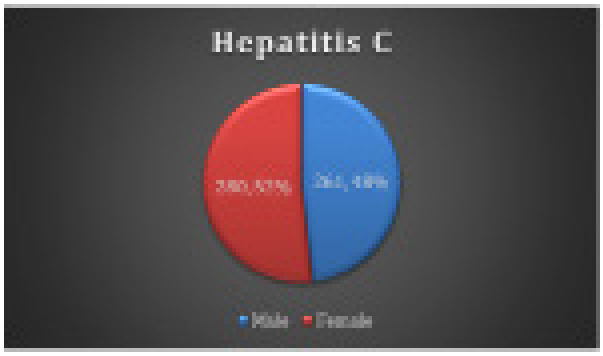

Fig 2. Gender wise distribution of Hepatitis C

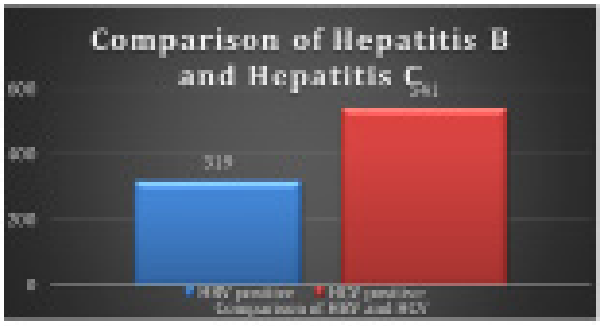

Fig 3. Comparison of Hepatitis B and C

DISCUSSION

The sample size comprised of 23,843 patients, who visited KCD from different regions of Khyber Pakhtunkhwa province. 541 patients were positive with HCV infection while 319 were positive for HBC infection. The frequency of Hepatitis C and Hepatitis B infection was recorded as 2.26% and 1.33% respectively. According to a study, Hepatitis C prevalence rate by different regions conducted in 2016, in Asia was 2.8% [18].

In this study, out of total 541 patients, the majority of cases of Hepatitis C were aged 21-40 years followed by the age group 41-60 years, and then there were the subjects younger than 20 and older than 60 years. This was probably because, after 60, mortality is high hence, prevalence decreases. And before 20, morbidity is low; hence risk factor exposure is less. Hepatitis C was slightly more prevalent in females (280 cases) than males (261 cases).

A study showed, the prevalence of active HCV was more in males 4% as compared to females (2%), which is not consistent with this study. The said study also showed that prevalence of HCV infection also increases with increasing age. Its ratio was highest (7.69%) in people of age 51 years and above which is somewhat consistent with this study[19].

Comparing these statistics with previous studies conducted in Pakistan, 1131 volunteer blood donors of Khyber Pakhtunkhwa province were enrolled for the screening of anti-HCV antibodies, in which 46(4.1%) were positive for anti-HCV antibodies. Critically analysing the result of patients with positive anti-HCV antibodies, positive donors were of the age 27-32 years or >32 years[20].

In South Asia, genotype 3 is more common. In the South Asian community, the main risks of transmission of Hepatitis C are medical or dental treatment, blood transfusion or blood products, the use of piercing equipment and use of unsterile razors. The main barriers to the diagnosis and treatment in the South Asian community are unawareness and misunderstandings about the nature of Hepatitis C, many believe it to be a sexually transmitted disease. There are many women unwilling to be treated for Hepatitis C because it involves multiple visits to the doctor and many injections [22].

The limitations of this study were lack of data on the demographics of the patients, as well as there was no consistent data on multiple visit history of patients.

CONCLUSION

Hepatitis C is one of the major public health issues; costing millions in the economy of developed as well as developing countries directly and indirectly. Comparing with previous studies conducted, 2.26% frequency isn't high, but the main problem is that it is the leading cause of chronic liver disease like cirrhosis and important cause of hepatocellular carcinoma and has affected most of the young and adult age group of our community. There is need for a

screening of Hepatitis B and C and mass media campaign about its preventive measures. Future research studies about Hepatitis B and C with objectives of risk factors, causes and factors contributing to the incidence of new cases should be carried out.

Author Contributions:

1. Umema Zafar and Junaid Ahsan: Drafting the work and literature review

2. Romana Ayub: conception or design of the work

3.Ali Zaman, Waseem Ahmad and Zeeshan Akbar: acquisition, analysis and interpretation of data.

Conflicts of Interest: "The authors declare no conflict of interest."

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