Original Article

Frequency of Hepatitis B and C in Patients Receiving Dental Procedures in a Tertiary Care Hospital in District Bannu-KPK, Pakistan

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ABSTRACT

Objective: To evaluate the frequency of Hepatitis B & C in patients receiving some sort of Dental Procedures in Dentistry Department of KGN Teaching Hospital, Bannu-KPK Pakistan.

Study Design: Descriptive/cross sectional study

Place and Duration of Study: The study was conducted in Dental Block, KGN Teaching Hospital, Bannu-KPK Pakistan from 1st January 2018 to 30thJune 2018.

Materials and Methods: 198 patients were included in the study who came to dentistry department, KGN hospital Bannu for numerous types of dental procedures. Serum of these 198 patients was screened and examined for the detection of HCV Ag and HBV Ag. Rapid card diagnostic test was performed for the same. Among all these 200 samples, all rapid test positive samples were tested further by ELISA. Data was analyzed statistically using one way ANOVA.

Results: Among dental patients, the overall HBV and HCV sero prevalence was found to be 4.0% and 4.5% correspondingly. Only 1.2% patients had both the infections. No remarkable difference was observed in prevalence of HBV and HCV in both genders i.e. male and female. An increased prevalence was found in patients having an age 52-62 years (11% for HBV and HCV respectively). Among the positive patients, most were belonging to Domail and Link road Bannu area. A high prevalence of dental procedure was found in patients in comparison to control ($p \leq 0.001$) for both HCV and HBV.

Conclusion: The sero-frequency of HCV and HBV is greater in rural area of district Bannu. This high frequency is attributed to the dentistry malpractice which is being carried out in these areas. We recommend that inhabitants of the rural areas should make their regular checkup for both hepatitis B & C in order to avoid the disease.

Key Words: Elisa, dental procedure, HCV, HBV

Citation of articles: Razaq A, Khan MO, Shah FU, Farooq M, Ahmad W. Frequency of Hepatitis B and C in Patients Receiving Dental Procedures in a Tertiary Care Hospital in District Bannu-KPK, Pakistan. Med Forum 2018;29(12):29-32.

INTRODUCTION

Hepatitis is an ailment that results in the inflammation of the human liver. Its two forms, B and C are found to be deadly worldwide. This is because; its chronic and severe form results in liver cirhossis and cancer. Numerous agents contribute towards the onset of the disease including alcoholism, drugs, autoimmunity, poison and most frequently viruses.

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Received by: August, 2018
Accepted by: October, 2018
Printed by: December 2018

Severe liver dysfunctions are a result of hepatitis B and hepatitis C. Among them, hepatocellular carcinoma and liver cirhossis are most common[1]. WHO estimation demonstrates 350 million victims of chronic HBV and 170 million victims of chronic HCV around the globe. Annual death rate from HBV is 563000 and from HCV is 366000 [2].

Hepatitis is most commonly victimizes the people of certain regions including Asia, Africa, Southern Europe and Latin America[3]. The responsible media for hepatitis spread is blood and its related products, sexual mating and intrafamilial transmission. In Pakistan, the disease is transmitted majorly from contaminated needles, unhygienic medical instruments and unsafe blood transfusion, shaving with unsterilized cissors, poor and unhealthy hygiene habits, nose and ear piercing in females and dental procedures etc[4-6].

A report from PMRC (Pakistan medical and research council) argues that overall prevalence of HBV is 2.5%and that of HCV is 4.9% in common populace of the country [7].

In dental procedures, HBV or HCV present in the saliva of the carrier patient is a major cause of the disease. This is because the dental procedures and treatment causes frequent bleeding and thus it can transmit the disease viruses. Various precautions including disposable gloves, good sterilization, disposable needles etc can prevent the transmission of the disease/virus from patient to dentist, dentist to patient and patient to patient in a dentistry clinic/room etc.

There is no sufficient published data on hepatitis B and C infections in patients reported to dental clinics or dental units of the hospitals in Bannu. This study is, therefore, an attempt to find out the prevalence of the disease among the patients attending dental units for getting some sort of dental treatment. The study also highlighted the numerous types of hazards of these infections associated with dental practice either to health care professionals or the patients.

MATERIALS AND METHODS

This was a descriptive cross sectional study which was conducted at the dentistry department of KGN teaching hospital from 1st January 2018 to 30th June 2018. All of the subjects were approached to dentistry department from various units of the same hospital for gaining some surgical dental procedure or for tooth extraction. Data about the age, place and other medical conditions was gathered by conducting interview of the subjects. All the subjects were sent for blood specimen collection to the laboratory of the hospital. Samples were centrifuged at 5200 rpm for 8 minutes and serum was collected and examined for HBV and HCV surface Ag through using "Rapid card diagnostic test". All rapid test(+) samples were further analyzed by third generation ELISA technique. Statistical analysis was done using one way annova and prevalence and percentage for all variables was intended.

RESULTS

A total of 198 patients were enrolled in this study who came to the dentistry department for tooth extraction or some other dental surgical procedure. Out of 198 subjects, 58% (n=116) were male while remaining 42% (n=84) were female.

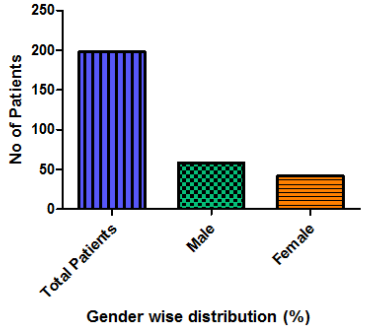

Figure No.1: Gender wise distribution of the patients

The age group was 18 to 65 years having a mean age 34 years. The prevalence of HBV and HCV was 4.0 and 4.5% respectively. The results are shown in figure 1and table 1.

Table. 1. Age wise distribution/frequency and percentage of the patients

Age (years)	Frequency	Percentage
15-20	21	10.60
21-30	72	36.36
31-40	31	15.65
41-50	47	23.73
51-60	27	13.63
Total	198	100

Statistically, no significant difference was observed among male and female. The highest prevalence was found among health care professionals and farmers. All the patient's population was divided into 5 groups and highest prevalence was found among the age group of 21-30 years. Prevalence of HBV and HCV by location is mentioned in table 2 below.

Table No. 2: Location wise HBV and HCV prevalence

Area	No of patients	HBV positive (n=8)	%age	HCV positive (n=9)	%age
Domail	77	3	3.89	3	3.89
S. Naurang	41	1	2.43	2	4.87
Surani	25	1	4.00	1	4.00
Kakki	22	1	4.54	2	9.09
Ghori-wala	33	2	6.06	1	3.03

The overall prevalence of HBV and HCV is mentioned in table 3 below.

Table No. 3: Prevalence of HBV and HCV by gender

Sero positive patients	Male		Female		*P* value
	n=	%age	n=	age	
HBV positive (n=8)	4	50.00	4	50.00	0.428*
HCV positive (n=9)	4	44.44	5	55.55	0.466*

*=not significant

DISCUSSION

Hepatitis B Virus (HBV) infection is a global health problem, with an estimated 400 million being chronic carrier of the virus. Around 1 million die due to the consequences of the infection [11, 12]. There have been studies regarding the prevalence of hepatitis B surface antigen (HBsAg) and anti-hepatitis C antibody (HCVAb) in district Bannu. However, the majority of these have reported a variety of rates, depending on their study population, which limits the generalizability

of their results to the general population [10]. The objective of this study was to determine prevalence of HCV and HBV in patients reporting for dental treatmentto dental units in KGN teaching hospital Bannu-kpk. Further, individual seeking dental care may be healthy or suffering from dreadful diseases like hepatitis B and C or may be carriers that cannot be easily identified. Such patient may act as a source for spreading such infection among dental health care workers and other patients in dental clinics. Hence, another objective of present study was to highlight the potential hazards of HBV and HCV to the dental doctors and other associated health workers as well as to patients attending clinics. The detectable level of HBs Ag and HCV antigen is varied from region to region and ranged between 4 and 4.5% in the population. Establishment of vaccination program and well screening in blood banks during the past ten years is expected to reduce the rate of HBV and HCV infection and the carrier pool [10]. As per present study, the sero prevalence of HBV and HCV among dental patients was 4.0% and 4.5 % respectively.

The present study revealed highest prevalence of HBV and HCV infection among health workers which was not noticed in earlier studies. Since a patient seeking treatment may be healthy, infected or a carrier that cannot be easily identified, henceforth, health workers are at high risk of having infection. As for as higher prevalence of HBV and HCV infection in farmers, the economic considerations in terms of morbidity, loss of work-days and also in terms of expenditure is matter of concern [13].

There was no statistical significant difference in prevalence of HCV and HBV in male and females which is partly in consensus with results of Rehman, et al. [10].

A high sero-positivity was prevalent in the age group of 50-62 years (11% for HBV and HCV respectively). However as per Rehman, et al. (2016) 14.35% were below the age of 15 years and 47 (6%) were below 10 years [10].

Regarding residence, most of patients were from Domail area 77 (38.88 % of total no. of patients investigated for serological tests). However most of positive result observed among those who were from country side of the area (38.88 % of total no. of serologically HBV positive cases and the same no. of serologically HCV positive cases) which is partly in consensus with results ofRehman, et al. (2016)[10]. Regarding patient‘s history, the prevalence of injection use both IV and IM was very high. These injections were provided by local chemists. Injection use was not statistically significant for both HBV and HCV results. However, there was a significantly high prevalence of dental procedures among cases as compared to controls ($p < 0.001$) for both HBV and HCV results which is partly in consensus with results of Rehman et al (2016)[10]. As for as Naurangarea is concerned, numerous unqualified medical practioners especially dental quacks are working in the area who do not have any knowledge about science and sterilization/barrier protocols as a result of which there is high chances of cross infection. Furthermore, each dental treatment needs to follow same sterilization protocols as any other minor/major surgical procedures which mean more time, equipments, manpower and expenditure. However, in the present scenario dentistry in the associated areas of district Bannu especially at primary health centre levels of rural areas is miserable where basic requirement for manpower, equipments which definitely counts towards sterilization protocol and chances of cross infection is far below mark.

CONCLUSION

The sero frequency of hepatitis B and C is high among patients especially from rural population of district Bannu attending government dental teaching hospital, Bannu, dental malpractice being major source of cross infection. So there is need to follow certain guideline/ recommendations to prevent these dreadful infections which include[14]:

I. All health workers must follow all sterilization protocols like use disposable gloves, syringe etc. for all procedures; all instruments must be autoclaved and used as sets for each patients.
II. A pre-operative screening (of all patients being prepared for surgery) for HBV and HCV is recommended as a routine, this is not for stigmatization, but to enable the healthcare givers make adequate preparations and take appropriate preventive measures when managing such patients.
III. All dental professionals weather doctor, paramedical staff or dental student need screening for hepatitis B and C.
IV. There is need of surveillance of hepatitis cases and trace to particular dental clinic for preventive measures.
V. There is need of surveillance/check to trace to dental clinics run by quacks for preventive measures.
VI. To reduce the chances of infection of healthcare givers therefore, all of doctors, dentists, surgeons should be vaccinated against HBV preferably at the start of their careers.
VII. Considering the dental treatment requirements in Kashmir valley, there is need to improve manpower facility, equipments and machinery gadgets at least in Government institutes at different levels in order to avoid any chances of cross infection of such dreadful infections.

Author’s Contribution:

Concept & Design of Study: Abdul Razaq
Drafting: Mohammad Omer Khan

Data Analysis:	Fareed Ullah Shah, Mohammad Farooq
Revisiting Critically:	Abdul Razaq, Mohammad Omer Khan, Wasim Ahmad
Final Approval of version:	Abdul Razaq

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Mujeeb SA, Aamir K, Mehmood K. Seroprevalence of HBV, HCV and HIV infections among college going first time voluntary blood donors. J Pak Med Assoc 2002;50(8): 269-70.
2. Ali SA, Rafe MJ, Donahueb, Qureshi H, Vermunda SH. Hepatitis B and hepatitis C in Pakistan: prevalence and risk factors. Int J Infect Dis 2009; 13(1): 9-19.
3. Ilyas M, Iftikhar M, Rasheed U, Yasmin S. Prevalence of Hepatitis B virus infection among population of factory workers in Gujranwala (Punjab) Pakistan. Biologia J 2012;58 (1): 47-52.
4. Previsani N, Lavanchy, D. WHO/CDS/CSR/ LYO/2002.2: Hepatitis B. Geneva: World Health Organization; 2002. Hepatitis B.
5. Raja NS, Janjua KA. Epidemiology of hepatitis C virus infection in Pakistan. J MicrobiolImmunol Infect 2008;41:4-8.
6. Samaranayake L. Rule of infection control. Int Den J 1993;43(6): 578-84.
7. Girdler NM, Mattherws RW and Scully C. Use and acceptability of rubber gloves for outpatient dental treatment. J Dent 1987;15(5):209-12.
8. Verrusio AC, Neidle EA, Nas KD, Silverman S, Jr, Horowtz AM and Wager KS. The dentists and infectious diseases: a national survey behavior and attitudes 1989.
9. Adel AM, Nadia MM, Azza MT. Knowledge and attitudes of dental patients towards cross infection control measures in dental practice 1997.
10. Rehman S, et al. Epidemic of Hepatitis C in a remote village of Kashmir, India. EC Bacteriology and Virology Research 2016;2(1):54-62.
11. Lee WM, Hepatitis B virus infection. N Engl J Med 1997;337:1733-45.
12. Mamun AIM ,Fasle Akbar SM, HBeAg negative chronic Hepatitis B an overview Hepatitis B Annual 2009;6(1):131-140..
13. El-hassen et al. Sero-prevalence of Hepatitis B Virus among patients attending Dental Clinics in Khartoum state-Sudan. IJAPBC 2015;4(2):523-30.
14. Odaibo GN, Arotiba JT, Fasola AO, Obiechina AE, Olaleye OD, Ajagbe HA. Prevalence of Hepatitis B virus antigen (HBsAg) in patients undergoing extraction at the University College Hospital, Ibadan. Afr J Med Med Sci 2003;32(3):243-245.