

FREQUENCY OF HEPATITIS B AND C IN PATIENTS OPERATED IN ORAL AND MAXILLOFACIAL SURGERY UNIT-A HOSPITAL BASED STUDY

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ABSTRACT

Viral hepatitis B and C is a continuous health hazard for the patients, and a threat for the surgical and anesthesia team. A Study was undertaken at department of oral and maxillofacial surgery Khyber college of Dentistry, to determine the frequency of hepatitis B and C in operated cases at this institute.

A Descriptive cross sectional study was conducted at the Department of Oral and Maxillofacial Surgery (OMFS) Khyber College of Dentistry (KCD). The admission charts of the patients operated from 1st Jan 2015 to 28th July 2016 were reviewed, to find out frequency of hepatitis B and C along with other medical problems like hypertension, diabetes mellitus, hepatitis, gastrointestinal disorders, cardiac, renal disorders and blood dyscrasias.

A total of 2076 were operated OMFS Khyber College of Dentistry, Peshawar. The frequency of Hepatitis B and C patients in operated cases was 2.5% (n=52). Frequency of all medical problems in operated cases was 7.033% (n=146). Amongst the patients with isolated / single medical problem were 6.4% (n=133), hepatitis B was the most common medical problem i.e., 32 cases (24.06%), reported in patients with co-morbidities operated in this unit followed by hypertension 25 (18.79%) cases, hepatitis C was the third most common isolated medical problem in operated cases. Male to female ratio of patients reporting with Hepatitis B and C Sero-positivity was 1.73: 1.

The frequency of hepatitis B and C reported to our unit is 2.5% and hepatitis B is the most common isolated medical co-morbidity in surgical cases. Both hepatitis B and C make a total of more than 40% amongst the operated cases. This is quite alarming for the surgical team

Key Words: *Viral hepatitis, hepatitis B and C, Oral and Maxillofacial Surgery, Operated cases, Surgical team.*

INTRODUCTION

Hepatitis-B and Hepatitis-C viral infection has been the major health problem all over the world.¹ It has been reported that approximately 350 millions people are infected with HBV and 170 million with HCV worldwide.² The hepatitis B virus (HBV) was first isolated in 1963. The hepatitis B surface antigen (HBsAg), a serological marker for HBV was first demonstrated by Blumberg in 1963, while hepatitis C

was first cloned in 1989.³ It is one of the major causes of morbidity and mortality, as an outcome of related acute and chronic liver diseases, cirrhosis and hepato-cellular carcinoma. More than 520,000 die each year from HBV related acute and chronic liver disease. WHO reported the prevalence of Hepatitis-B and C vary widely in various countries. Certain countries like Canada and Australia, with prevalence <1% are labeled as countries of low endemics. United States of America and Europe, with prevalence 1% are labeled as countries of medium endemics. However Africa, Central and South Asia having prevalence > 2% are labeled as high endemic areas. Pakistan being a high endemic country, is facing a major challenge to control the spread and reduce prevalence of Hepatitis-B and C. Due to low literacy rate, unhealthy social practices, poverty and insufficient health facilities, we are unable to reduce its transmission and prevalence effectively.⁴

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HBV infection is the most important infectious occupational hazard in the dental profession. Vectors of infection with HBV in dental practice include blood, saliva, and nasopharyngeal secretions. Intra-orally, the greatest concentration of hepatitis B infection is the gingival sulcus. In addition, periodontal disease, severity of bleeding, and bad oral hygiene were associated with the risk of HBV.⁵

Patients visiting dental care facilities may present with different co-morbidities, which sometimes may be unknown to them or they may be on a complex range of medications for their medical conditions. The goal of dental treatment is to deliver safe and effective treatment without causing any medical emergency.⁶ Hypertension had become one of the most common diseases affecting people worldwide.⁷ It is one of the most important risk factor for cardiovascular diseases and stroke; the leading cause of death today.⁸ Uncontrolled diabetes has been reported to increase incidence of caries, periodontal problems and delayed wound healing in dental surgical procedures.⁹

The objective of this study was to determine the frequency Hepatitis B and C in operated cases. This study will provide local data on the subject matter regarding magnitude of viral hepatitis B & C in patients seeking surgical management. Study will not only help the general dental practitioners but also oral and maxillofacial surgeons, anesthetists and maxillofacial surgical auxiliary staff in identifying risks of cross infections in surgical patients.

METHODOLOGY

A Descriptive cross sectional study was conducted at the Department of Oral and Maxillofacial Surgery (OMFS) Khyber College of Dentistry (KCD), Peshawar from 1st January 2015 to 28th July 2016. The admission charts/operation theatre lists of the patients were reviewed in the study period. The data was collected regarding the variables of the study i.e., age, gender, chief complaint of the patient for which the patients were admitted and Hepatitis B and C sero-positivity. The protocol for screening in our department is by immunochromatographic methods (ICT), followed by confirmation with enzyme-linked immunosorbent assay, (ELISA) Methods. Data regarding other, co-morbidities like, hypertension, diabetes mellitus, hepatitis, gastrointestinal disorders, cardiac, renal disorders and blood dyscrasias was also collected. Hepatitis B and C patients were specifically targeted to determine the frequency of viral hepatitis B and C sero-positivity in these surgical cases. Only those cases operated under general anesthesia and endo-tracheal intubation were included in the study. Surgical Patients treated under local anesthesia were excluded from the study. The data was entered in SPSS version 20, and was analysed using descriptive statistics.

RESULTS

A total of 2076 patients were operated OMFS unit Khyber College of Dentistry, Peshawar. The overall

frequency of Hepatitis B and C sero-positive patients was 2.5% amongst these surgical cases. Male to female ratio of patients reporting with hepatitis B and C sero-positivity was 1.73: 1. Fig 1. Age ranged in viral hepatitis patient from 9 years to 71 years. Majority of sero-positive patients were in their third decade of life i.e. 46.15% followed by seven decade 15.38%, the rest of details regarding age distribution is given in Table 1. More than half of viral Hepatitis patients (B & C), had a chief complain of maxillofacial trauma of some sort i.e. 51.9% rest of the details about chief complaints in these patients is given in Table 2. A reasonable number of cases i.e., 7.033% (n=146) patients had medical problems in overall operated 2076 patients. Frequency of the patients with isolated/single medical problem was 6.4% (n=133), hepatitis B was the most common medical problem i.e., 32 cases (24.06%), reported in patients with co-morbidities operated in this unit followed by hypertension 25 (18.79%) cases. Hepatitis C patients were the third most common co-morbid patients in that list of isolated co-morbidities 12.03% (Table 3). While the most common combination of co-morbidities was diabetes mellitus and hypertension in 5 cases Table 4.

TABLE 1: AGE DISTRIBUTION OF THE PATIENTS WITH HEPATITIS B AND C

S. No.	Age in years	No. of patients (n)	Percentage
1	1-10	1	1.92
2	10-20	3	5.76
3	21-30	24	46.15
4	31-40	2	3.84
5	41-50	7	13.47
6	51-60	3	5.76
7	61-70	8	15.38
8	71 -80	4	7.69
	Total	52	100

TABLE 2: CHIEF COMPLAINTS OF PATIENTS WITH HEPATITIS B AND C

S. No.	Presenting Complaints	No. of patients (n)	Percentage
1	Complicated Exodontia	2	3.84
2	Pathologies	9	17.3
3	Trauma	27	51.9
4	Infections	7	13.47
5	Ankylosis	1	1.92
6	Neuralgias	2	3.84
7	Fire arm injuries	4	7.69
	Total	52	100

TABLE 3: ISOLATED CO MORBID PATIENTS OPERATED IN STUDY PERIOD

S. No.	Morbidities	No. of patients (n)	Percentage
1	Diabetes	15	11.27
2	Hypertension	25	18.79
3	Cardiac	1	.75
4	Hepatitis B	32	24.06
5	Hepatitis C	16	12.03
6	Pregnancy	2	1.5
7	Respiratory	11	8.27
8	Thyroid	1	.75
9	Blood	2	1.5
10	Epileptic	11	8.27
11	Others	17	12.78
	Total	133	100

TABLE 4: COMBINED CO-MORBID PATIENTS OPERATED IN STUDY PERIOD

S. No.	Morbidities	No. of patients (n)	Percentage
1	Diabetes + HTN	5	38.46
2	Cardiac + HCV	1	7.69
3	HTN + HCV	2	15.38
4	HTN + Respiratory	1	7.69
5	Diabetic + Asthmatic	1	7.69
6	Diabetic + HCV + Asthmatic	1	7.69
7	Epileptic + Cardiac	1	7.69
8	Handicapped + epileptic	1	7.69
	total	13	100

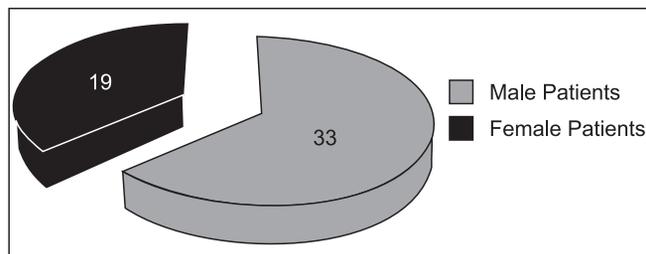


Fig 1: Gender Distribution of Hepatitis B and C patients

DISCUSSION

Hepatitis B and C virus (HBV & HCV) are known cause of infectivity leading to significant morbidity and mortality world-wide especially in the developing countries like Pakistan.¹⁰ Nearly 500 million people

are estimated to be infected with hepatitis C world wide.¹¹ Presence of anti-HCV Ab and HBsAg indicates that patient may harbor acute hepatitis leading to serious complication of fulminant hepatitis and chronic hepatitis with symptomatic or asymptomatic carrier state which may progress to serious consequences like cirrhosis and hepato-cellular-carcinoma (HCC). Hepatitis B & C is commonly transmitted by per-cutaneous exposure to contaminated blood and as little as 0.01ml can transmit infection making them a big culprit. Many studies have been conducted in Pakistan during the past decade and guidelines for the prevention and control of hepatitis were formulated. Even then the graph of hepatitis Band C positive patients is going up in our population. The overall incidence in general Pakistani population ranges between 4-25%.³

In our study, the frequency of hep B and C in surgical cases was 52 out of 2076 cases making a frequency of 2.5% and out of all medical problems reported Hepatitis B was the most common medical problem reported i.e. 24.06%, thus necessitating the role of immunization of not only the operating surgeons, anaesthetists, trainee medical officers/residents undergraduate students but also of the supporting staff such as surgical and anaesthesia technicians. The frequency of Hepatitis C was 12.03% in our sample of patients, thus viral hepatitis both B and C making a total of 36.09% in isolated co-morbidities, while Hepatitis C was also reported in 3 more cases with combined co-morbidities. This is quit alarming for the surgical and anaesthesia staff. In another study conducted in 2005 at Khyber College of dentistry, Peshawar increased frequency of HBV as compared to HCV infection was found with a prevalence rate of HCV was 1.26 %¹², which is the same as our study.

A study conducted at Medical Department of Khyber Teaching Hospital regarding relative frequency of HBV and HCV in patients of liver cirrhosis in NWFP also shows high frequency of HBsAg positive patients.¹³ In a study by Bhopal FG et al¹⁴ out of 300 surgical patients, 18.66% were positive for HBV and 6.33% for HCV. Results from another study showed 16.24% for HBsAg and 8.66% for HCV antibody positive patients respectively.¹⁵ The results are comparable to our study.

There was a male predominance of hepatitis B and C in our study (1.73:1 male to female ratio of Hep B and C patients). Male predominance has also been reported in a study by Khan MS et al² i.e. 66.93%. The same has been supported by Nasir Khokher et al¹⁶ who have reported prevalence rate of HBV & HCV as 94 % males and 6% females in 47538 patients in Islamabad.

Viral hepatitis is a severe threat to the community worldwide. It is predictable that three to four million persons are infected each year. Pakistan is the intermediate HBV prevalence zone with carrier rate of 3-4% where both HBV and HCV are emerging as a major health problem, more than 2000 million populations global and 350 million people are carrier of the virus by the presence of HBSAG surface antigen.¹⁷ 130 million

are chronic HCV carriers and are at risk of hepatocellular carcinoma.¹⁸ Hospital based Maxillofacial surgeons are at high risk of getting the hepatitis B and C virus, since they have extended surgical operation uncovered to the virus whereas, from perforation of glove, wire stick injury, accidental pricks. Low quality glove and extend used of glove more than one hour in surgical field.¹⁹

CONCLUSIONS & RECOMMENDATIONS

Both HBV and HCV are very common health problems so all the possible measures should be explored to prevent the transmission and sequel of these two common viral infections. We need to treat every surgical case as positive and universal precautions should be adopted to manage cross infections.

Emphasis should be laid on public health education particularly creating awareness about the risk factors of hepatitis B and hepatitis C, its prevention and control to minimize its transmission. Mass media should be used for this purpose. All patients should be routinely screened for Hepatitis B (HBsAg) and Hepatitis C (Anti HCV) prior to any invasive procedure.

All the surgeons, theatre nurses and healthcare staff should be vaccinated and their antibody status should be checked on regular basis. Healthcare professionals doing invasive procedures, general and maxillofacial surgeons in particular should be advised to take universal precautions and avoid cross infection. Surgeons should take standard precaution and use barrier techniques while operating upon infected patients. Only screened blood and blood products should be transfused as it is one of the common sources of transmitting blood borne infections. Disposable syringes should be disposed properly eliminating the chance of their reuse. Proper training of the operation theatre staff and their immunization is important to avoid cross infection.

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CONTRIBUTIONS BY AUTHORS

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| 2 Muslim Khan: | Main Idea / Rationale/ Methodology/tabulation/abstract |
| 3 Tariq Ahmad: | Statistics/ helped in abstract writing |
| 4 Khadija Asad: | Data Collection/ helped in tabulation |