PREVALENCE OF HEPATITIS B AND C IN SURGICAL PATIENTS, CMH RAWALPINDI

Naseem Ahmed, Kiran Naseem*, Ahmed Mujadid Burki

Combined Military Hospital/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, *Institute of Business Administration Karachi Pakistan

ABSTRACT

Objective: To find out the prevalence of Hepatitis B and C in patients coming in for surgery in CMH Rawalpindi.
Study Design: Observational and descriptive study.
Place and Duration of Study: Operation Theater, CMH Rawalpindi, from Feb to May 2018.
Material and Methods: All patients admitted for surgical procedures in the above mentioned time span. Information on the incoming patients' age, sex, surgery, Hepatitis B and Hepatitis C test results was recorded in a pre-designed excel workbook on daily basis. Screening tests for HBV and HCV were done using blood samples of the patients in CMH laboratory/AFIP Rawalpindi. Statistical analysis was applied. Results were plotted and tabulated as presented in the paper.
Results: The number of subjects recognized as Hepatitis B or C positive were 181 which are 4.38% of the sample of 4128. Out of the infected, 148 patients (81.3%) were diagnosed with Hepatitis C, 32 patients (17.6%) with Hepatitis B and a single patient (0.5%) suffered from both Hepatitis B and C.
Conclusion: Awareness in the community about what Hepatitis is, how it is spread simply as a result of everyday activities that people are negligent about, and the urgency of routine screening for Hepatitis is a dire need of Pakistani society. Hence, anti-viral drug therapies for HCV and HBV vaccinations should be employed to treat these conditions and eventually reduce their spread.

Keywords: Hepatitis, Prevalence, Surgical.

INTRODUCTION

Hepatitis is described as the inflammation of the liver[1] as a result of a viral infection. Scientists, till present date, have identified five exclusive viruses responsible for this disease, referred to as "types": A, B, C, D and E. Around the world, hepatitis is considered a major challenge. According to the figures provided by the World Health Organization (WHO), 325 million people were living with chronic hepatitis infection in the year 2015[1], which is now estimated to rise to approximately 350 million in 2018[2]. Hepatitis A and E are usually a result of intake of contaminated food and water, whereas hepatitis B, C and D typically occur as a result of contact with infected body fluids which are most commonly transmitted through contaminated blood and its products, together with the unsterilized medical equipment employed during operative procedures and elsewhere[3].

In the initial stages, chronic infections, of Hepatitis B and C, the symptoms may not appear[14]. They may only exhibit themselves when the liver starts getting adversely affected. On the contrary, symptoms of acute hepatitis may emerge early[13]. These include yellow eyes which are a sign of jaundice, dark urine, pale stool, fatigue, flu, weight loss, pain in the abdomen, loss of appetite.

Diagnosis, another important aspect of a disease, in case of Hepatitis, is done using multiple techniques ranging from the conventional history and physical exam, liver function test, blood tests, to methods like ultrasound of the abdomen and liver biopsy[15].

Anesthetists, surgeons and other para medical staff are exposed to the highest probability of acquiring HBV and HCV infection from the patients undergoing operation[15,16].

Correspondence: Dr Naseem Ahmed, House No 12, Block B, Race Course Apartments Rawalpindi Pakistan
Email: naseemahmed937@gmail.com
Received: 27 Jul 2018; revised received: 31 Jul 2018; accepted: 31 Jul 2018

PATIENTS AND METHODS

The study design is descriptive study. The data was collected at Combined Military Hospital CMH Rawalpindi in a time duration of approximately three months, from February 22nd, 2018 to May 31st, 2018. A total of 4128 patients were selected by non-probability, purposive sampling.

To test for hepatitis occurrence in the patients prior to bringing them to the operation theater, blood samples were taken from each individual and submitted to the CMH laboratory/AFIP. As an outcome of the existence of antibodies by serologic test, patients were labeled hepatitis C positive, whereas those labeled hepatitis B positive had hepatitis B surface antigen detected in their serum. These results were added to the patients' medical history files.

The study included patients both those who were brought in through emergency as well as those taken up as elective surgical cases. Surgical procedures conducted on these cases included General and orthopedic surgery, Spine and neuro surgery, Thoracic surgery, vascular surgery, ENT and eye surgery, Gynae / Obstetric surgery, Laparoscopic surgery, Plastic surgery, Trauma etc, with the exception of cardiac surgery.

The patients were from a variety of backgrounds and income groups, not even restricted to a particular geographical area like within Rawalpindi. CMH Rawalpindi, being the biggest tertiary care hospital of Pakistan Army, receives an array of cases from other parts of Pakistan as well, especially around the vicinity of Rawalpindi/Islamabad for it also deals with patients who are termed as a "difficult" case in other hospitals. These patients comprised of both defense forces personnel and their families and civilian non entitled (CNE).

The number of patients coming in for surgery were recorded in the data bases of the CMH, Operation theatre reception in their hard copy register records, together by the authors with the assistance of a resident female anesthetist who recorded via Microsoft Excel 2013. Patients' gender, age, and the medical procedure they were admitted for and Hepatitis B and C test results were recorded. Data was presented in the form of frequency distribution and percentage illustrations.

RESULTS

From a total of 4128 patients studied, the number of subjects recognized as Hepatitis positive were 181 which is 4.38% of the sample of 4128. One Hundred forty eight patients (81.3%) were diagnosed with Hepatitis C, 32 patients (17.6%) with Hepatitis B and a single patient (0.5%) suffered from both Hepatitis B and C simultaneously. These results, as round up percentages, are showcased in fig-1.

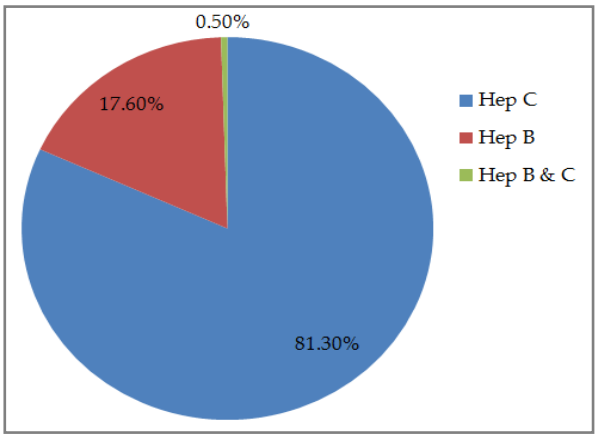

Figure-1: Sub-Classification of hepatitis positive patients.

The distribution of hepatitis B & C patients on the basis of gender is shown in fig-2.

The age of the patients varied between 14 years to 95 years, with an average age of around 49 years and the median being 50 years. The Age wise cumulative frequency distribution of hepatitis positive cases is given in fig-3 for overall Hepatitis B or C incidence and each of the three sub categories including Hepatitis B only, Hepatitis C only and Both Hepatitis B and C.

The sharpest increase in the Hepatitis incidence was seen between the age 30 and 70 years from 25 to 168 patients.

The age deciles were further established for a clearer understanding of the age groups in

which Hepatitis cases occur the most and the distribution of each sub category of Hepatitis positive within each age group as shown in fig-4.

As per the findings of this analysis, the age decile with the most incidences of Hepatitis positive is 60<Age≤70 years with around 21% Hepatitis positive cases. Second to this is 30<Age ≤40 years with approximately 20.5% Hepatitis positive patients. Looking at the figures of HBV and HCV positive cases, HBV is highest in 40<Age≤50 years and 60<Age≤70 years, with 18.75% occurrence in both. On the other hand, HCV incidence is highest at 21.62% in both age groups of 30<Age≤40 years and 60<Age≤70 years respectively.

An alarming fact that came out as a result of this research was that it was the first time that most of these patients learnt about them being HBV or HCV positive. Before these blood tests prior to their respective surgeries, it was not in their knowledge that they suffer from Hepatitis. As a consequence, majority of them were unaware of the necessary preventive measures that have to be taken care of in the routine life to avoid individual inception of Hepatitis.

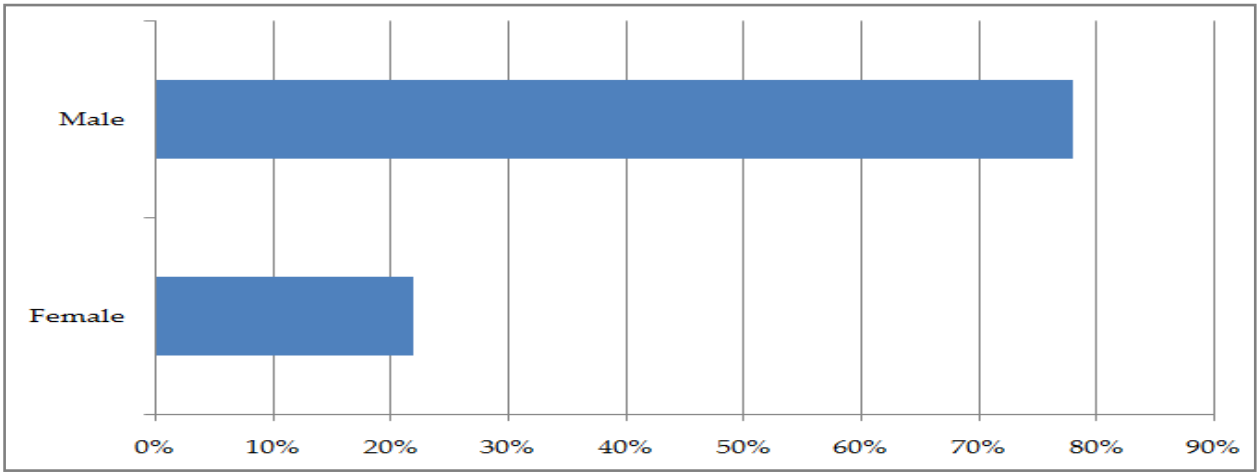

Figure-2: Sex based distribution of Hepatitis cases.

DISCUSSION

Our study establishes a comparably low percentage of 4.38% of Hepatitis (B or C) positive patients in the sample taken of 4128 personnel. Within the stated proportion, 81.3% had HCV, 17.6% had HBV and 0.5% had both. After a thorough literature review, setting our stats parallel to that of other similar studies, it was found that there is a significant difference between the results.

As revealed in a course of study at the Department of Surgery, Baqai Medical University, Karachi, amongst a total of 275 patients, 9.8% i.e. 27 patients had Hepatitis virus: HBV 37%, HCV 51.9% and both HBV & HCV, 11.1%. Identical to our development, the infection was more trivial in male than in female subjects[4]. Kinner *et al* in March 2018, reported 0.4%-25% infected with Hepatitis B, 0%-70.6% with Hepatitis C in incarcerated adolescents and young adults (AYAs) among 72 studies[5].

In an observational study of 200 blood donors in 2018, the blood donors were deferred due to their history of jaundice for unidentified reason. Serology and Individual Donation Nucleic Acid Testing (ID- NAT) for hepatitis B and hepatitis C were carried out. In every 10 samples, 4 were HBV positive, 5 were HCV and 1 was co-infection (HBV & HCV)[7]. Looking at these in terms of percentages, we get 40% HBV positive, 50% HCV positive and 10% with co-infection- diverging to a great extent from our results.

One of the most well organized papers on the topic of HBV done in Pakistan is a literature review enveloping 229 studies out of which

106 were published from 1998 to 2010[7]. This extensive report was published online on March 6th, 2011 in Virology Journal, covering the incidence of HBV in different population sections: Blood donors, general population, Pakistani healthcare workers, surgical patients, women and children, prisoners, diseased population and drug users. Focusing on surgical patients only, 7.397% ± 2.012% HBV prevalence rates were determined in patients through four different studies[8,9].

One of factors leading to increased Hepatitis transmission in Pakistan is lack of awareness about Hepatitis[11], preventive measures and its transmission and a shortfall in serological screening before surgical procedures[10]. Endorsement, for every patient flowing in a medical institute for a surgery, of screening of HBV and HCV infection is necessary[12].

CONCLUSION

Awareness in the community about what Hepatitis is, how it spreads simply as a result of everyday activities that people are negligent about, and the urgency of routine screening for Hepatitis, is a dire need of Pakistani society. Hence, anti-viral drug therapies for HCV and HBV vaccinations should be employed to treat these conditions and eventually reduce their spread. Apart from this, databases extracted from the medical centers in Pakistan should be updated timely for better record keeping and to study improvement in the prevalence of the Hepatitis cases properly.

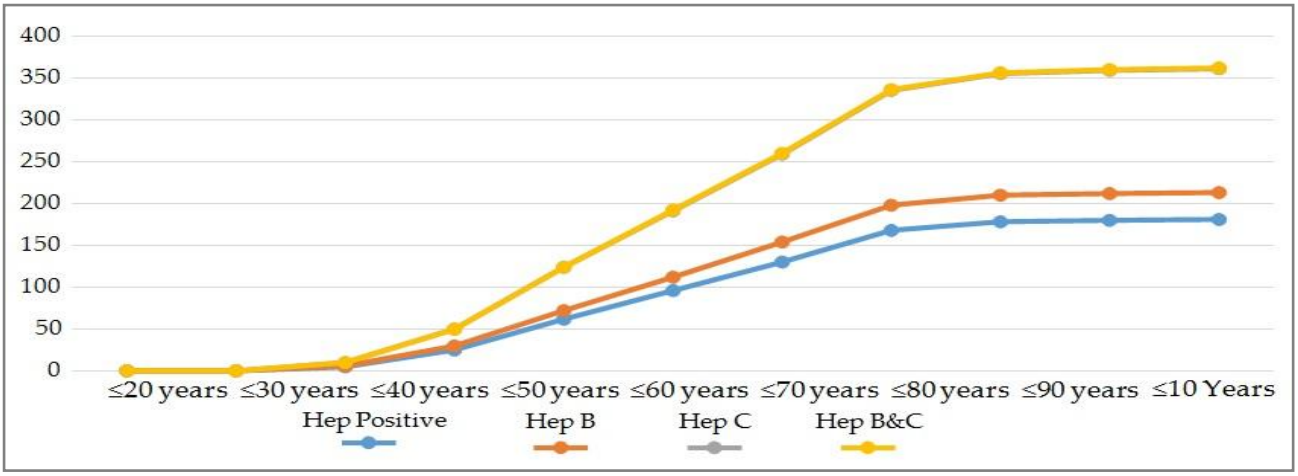

Figure-3: Age wise cumulative frequency distribution of hepatitis prevalence.

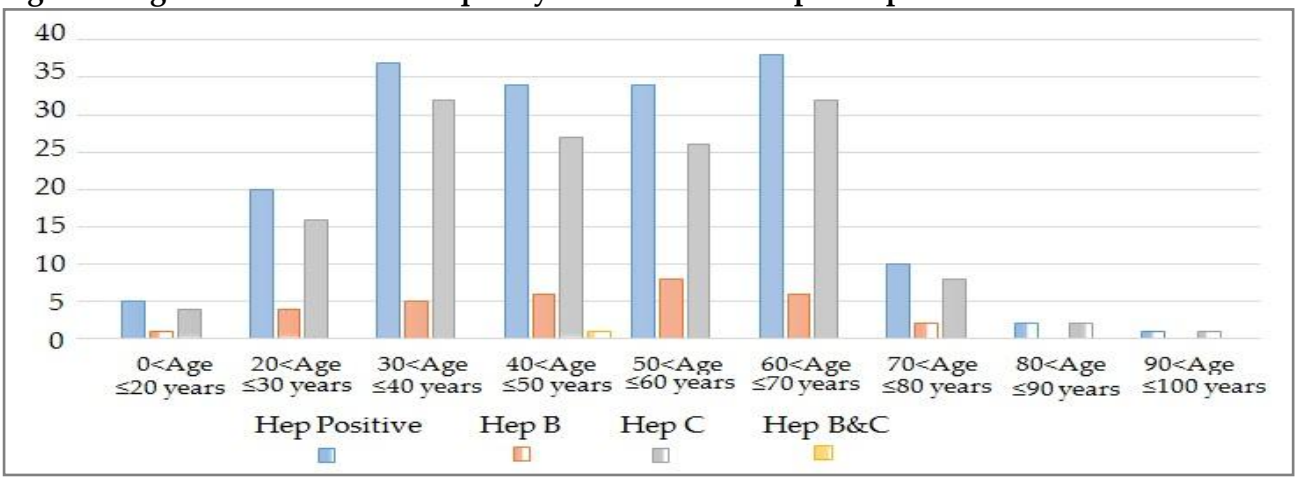

Figure-4: Prevalence of Hepatitis in Age Deciles.

LIMITATION OF STUDY

In February, 2018, Jiang Xing (PhD), Anne C Moorman (MPH) *et al* declared that HBV surface antigen and anti-HBV positivity differ by demographics which include gender, age and race[6]. In our approach, we did not include race which could have altered our outcome.

Secondly, since most of the patients were forces officers and their dependents, they might be more educated about their health condition and about hepatitis in general. This could be used to explain the low prevalence results generated by this study.

The data collected comprised of entries of around 3 months only. In order to acquire more precise results which depict true picture of Hepatitis B and C prevalence, data recording should be continued throughout the year. Also, it is more reliable if surveys are filled for each patient which include other important details like race, income class, previous treatment history etc.

The absence of secondary database for Pakistan's count of Hepatitis positive patients meant that the study results could not be tallied with robust and authentic numbers, accepted at national and international level than just one or two hospitals. Throughout the course of this research, the need of a well maintained database was felt very strongly.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

1 Hepatitis-B Fact Sheet No. 204. Geneva, World Health Organization, 200C http://www.who.int/en/news-room/fact-sheets/detail/hepatitis-c

2 Hussain R, Mansoor H, Iqbal T, Askar R, Shaheen U, Rehman HU. Prevalence of hepatitis B (HBV) infection In pregnant women in district Kohat, Khyber Pakhtunkhwa, Pakistan. J Entomol Zool Stud 2018; 6(1): 254-57.

3 Hennessey K, Mendoza-Aldana J, Bayutas B, Lorenzo-Mariano KM, Diorditsa S. Hepatitis B control in the World Health Organization's Western Pacific Region: Targets, strategies, status. Vaccine 2013; 31(Suppl-9): J85-92.

4 Ali SA, Shah FA, Ahmed K. Prevalence of Hepatitis B and C I Surgical Patients. J Surg Pak 2007; 23(2): 109-12.

5 Kinner SA, Snow K, Wirtz AL, Altice FL, Beyrer C, Dolan K. Age-Specific global prevalence of Hepatitis B, Hepatitis C, HIV, and tuberculosis among incarcerated people: A systematic review. J Adolesc Health 2018; 62(3): S18-26.

6 Sanou AM, Benkirane K, Tinto B, Cissé A, Sagna T, Ilboudo AK, et al. Prevalence of Hepatitis B virus and Hepatitis D virus Coinfection in western burkina faso and molecular characterization of the detected virus strains. Int J Infect Dis 2018; 70: 15-9.

7 Ali M, Idrees M, Ali L, Hussain A, Ur Rehman I, Saleem S, et al. Hepatitis B virus in Pakistan: A systematic review of prevalence, risk factors, awareness status and genotypes. Virol J 2011; 8: 102.

8 Moosa FA, Shaikh BA, Choudhry MS, Zuberi BF, Khan FW, Sultan N. Frequency of hepatitis B and C in pre-operative patients for elective surgery. JLUMHS 2009; 8(2): 150-52.

9 Shirazi B, Jaffery AH, Kishwar M, Shamim MS. Screening for hepatitis B & C in surgical patients. J Coll Phy Sur Pak 2004; 9: 10-3.

10 Masood Z, Jawaid M, Khan RA, Rehman S. Screening for hepatitis B & C: A routine preoperative investigation. Pak J Med Sci 2005; 21(4): 455-9.

11 Daudpota AQ, Soomro AW. Sero prevalence of hepatitis B and C in surgical patients. Pak J Med Sci 2008; 24: 483-84.

12 Chaudhary IA, Khan SA, Samiullah. Should we do hepatitis B and C screening on each patient before surgery: Analysis of 142 cases. Pak J Med Sci 2005; 21(3): 278-80.

13 Miarons M, Sánchez-Ulayar A, Sempere G, Marín S, Castellví JM. New direct-acting antivirals for hepatitis C treatment and neuropsychiatric symptoms in psychiatric risk groups. Eur J Hosp Pharm 2018; 001352.

14 Guss D, Sherigar J, Rosen P, Mohanty SR. Diagnosis and management of hepatitis C infection in primary care settings. J Gen Intern Med 2018; 33(4): 551-57.

15 Thorburn D, Roy K, Cameron SO. Risk of Hepatitis C virus transmission from patients to surgeons. Gut 2003; 52(9): 1333-38.

16 Dubois F, Desenclos JC, Mariotte N, Goudeau A, Collaborative Study Group. Hepatitis C in a French population-based survey, 1994: Seroprevalence, frequency of viremia, genotype distribution, and prognostic / risk factors. Hepatol 1997; 25(6): 1490-96.