Original Article

Frequency of HBs Ag and Anti-HCV in Trauma Patients

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ABSTRACT

Background: This study was carried out to determine the frequency of Hepatitis B&C Viral infection in patients undergoing emergency surgical operations after trauma, and to evaluate the associated risk factors.

Study Design: Descriptive Study

Place and Duration of Study: This study was conducted at General Surgical, Orthopaedic and Paediatric Surgery Department of Ghulam Muhammad Mahar Medical College Hospital Sukkur from May-2011 to April-2012.

Patients and Methods: All the patients who were admitted in the Surgical and orthopaedic department for emergency surgical operations followed by trauma were included in the study. The patients were screened for HBsAg and Anti-HCV using immunochromatography (ICT) method. Those who were weak positive by ICT were further confirmed by Enzyme Linked Immunosorbent Assay (ELISA).

Results: 592 patients were admitted in Surgical and orthopaedic department during a period of last one year for emergency operations after trauma and were screened for HBsAg and Anti-HCV. Out of these 592 patients 472 (79.7%) were males and 120 (20.27%) were females. Mean age of these patients was 40 years. After screening, 33 (5.57%) patients were found HBsAg positive and 117 (19.76%) were Anti-HCV positive, while 09 (1.5%) were positive for both.Hepatitis-B was found in 21 (2.3%) males and 12 (1.3%) females, while Hepatitis-C was predominantly found in 68 (7.44%) males and 49 (5.36%) female patients.

Parenteral injections by Quacks, previous surgery, blood transfusion and shaving by barbers were found to be the risk factors.

Conclusion: Higg frequency of HBs Ag and Anti-HCV was found in trauma patients undergoing emergency surgery. Our message is that "Prevention is better than cure". So it is essential to prevent the spread of Hepatitis B&C by screening every patient before surgery and counseling of patients.

Key Words: Hepatitis-B, Hepatitis-C, screening, trauma patients.

INTRODUCTION

Viral Hepatitis (HBV & HCV) is a major health problem affecting approximately two billion population worldwide. It is one of the single most important cause of chronic liver disease and hepato-cellular carcinoma in Pakistan and worldwide and is now spreading beyond endemic dimensions. The Hepatitis-B virus (HBV) was first isolated by Blumberg in 1963.[1] It has infected over 2 billion individuals worldwide. More than 520,000 people die each year from HBV related acute and chronic liver disease.[2] Hepatitis-C virus (HCV) infection is increasing even more rapidly and has occurred in endemic situation in most parts of the world, with a prevalence of about 3% worldwide.[3] Nearly 500 million people are estimated to be infected with Hepatitis-C worldwide.[4] Hepatitis-C virus infection progresses showly and carries a high risk of chronic liver disease (70-80%) and latter Hepatocellular carcinoma.[5] Hepatitis B&C viruses are known cause of infectivity leading to significant morbidity and mortality worldwide especially in the developing countries like Pakistan.[6] In Pakistan, a large proportion of the population is already infected with Hepatitis B&C with the prevalence of 10% for Hepatitis B and 4-7% for Hepatitis-C. Hepatitis B&C are commonly transmitted by percutaneous or permucosal exposure to contaminated blood or blood derived body fluids. So these are transmitted by contaminated blood transfusion, un-sterilized syringes and the surgical instruments, dental surgery, sexual contact, drug abuse, shaving razors, tooth brushes and shaving by barbers. Transmissions of blood borne HBV & HCV from health care professionals to patients have also been documented.[7,8] Number of patients with Hepatitis B&C being received for elective and emergency operations has increased tremendously. Thus healthcare providers especially Surgeons & Operation Theatre Staff has significantly increased risks of infectivity alongwith further transmission of the disease, if pre-operatively screening and standard precautions are not followed strictly.

This study is carried out to find out the frequency of Hepatitis B&C in patients admitted for elective surgery in Surgical Department, and to take the adequate protective measures in Operation theatres to avoid further spread of these infections.

PATIENTS AND METHODS

This study was conducted in the department of Surgery,orthopaedics and paediatric surgery, Ghulam Muhammad Mahar Medical College Hospital, Sukkur

during a period of last one year from May-2011 to April-2012. Ghulam Muhammad Mahar Medical College Hospital is newly established teaching hospital, providing services to patients of Upper Sindh, adjacent areas of Balouchistan and Lower Punjab. All patients undergoing elective surgery regardless of age, gender and nature of operations were selected for the study after taking informed consent. History and physical examination were recorded with special reference to risk factors and vaccination status. The patients were screened for HBs Ag and Anti-HCV using immunochromatography (ICT method). Those who were weak positive by ICT were further tested by Enzyme Linked Immunosorbent Assay (ELISA). In positive cases, LFT, PT & APTT & Ultrasound abdomen were performed.

Special precautions were taken during surgery of positive patients like hand free transfer of sharp cutting instruments, wearing double gloves and preventing pricking of needles during suturing. After surgery all patients were referred to Physician for further management in Liver Clinic established by Prime Minister's Program in our Hospital.

RESULTS

592 patients were admitted in Surgical,orthopaedic and paeds surgery department during a period of last one year for emergency operations followed by trauma and were screened for HBsAg and Anti-HCV. Out of these 592 patients, 472 (79.7%) were males and 120 (20.27%) were females. Mean age of these patients was 40 years. After screening, 33 (5.57%) patients were found HBsAg positive and 117 (19.76%) were Anti-HCV positive, while 09 (1.5%) were positive for both. Hepatitis-B was found in 21 (2.3%) males and 12 (1.3%) females, while Hepatitis-C was predominantly found in 68 (7.44%) males and 49 (5.36%) female patients. 90% of positive patients belonged to Rural Areas. Parenteral injections by Quacks, previous surgery, blood transfusion and shaving by barbers were found to be the risk factors.

Table No.I: HBs Ag & Anti-HCV Reactive patients (n=913)

HBS Ag	Anti-HCV
Male = 21 (2.3%)	Male = 68 (7.44%)
Female = 12 (1.3%)	Female = 49 (5.36%)
Total = 33 (3.61%)	Total = 117 (12.8%)

Age distribution is shown in Table-II. Risk factors identified in seropositive patients are shown in Table-III. No patient had history of vaccination against HBV. Screening for hepatitis B&C were advised to the family members of affected patients. All admitted patients who were not vaccinated and not suffering from Hepatitis B were also advised for vaccination.

Table No.2: Age distribution of HBs Ag & Anti-HCV Reactive patients

Age (in years)	HBs Ag n=33	Anti HCV n=117
01-10	0	0
11-20	04	03
21-30	07	06
31-40	09	43
41-50	05	25
51-60	04	21
61-70	04	22

Table No.3: Risk Factors identified in Hepatitis B&C Reactive Patients

Risk Factors	No. of patients n=150	%age
Barber Shave	37	24.66%
Dental Procedure	13	8.66%
Surgical Procedure	09	6%
Parental Injections	61	40.66%
Blood Transfusion	17	11.33%
History of Contact	11	7.33%
Drugs Addicts	02	1.33%

DISCUSSION

Hepatitis B&C are global problems. The incidence of Hepatitis B&C has achieved endemic situation in many countries of the world especially under-developed countries like Pakistan. In our country, it has been recorded at an alarming level is most parts, especially in rural areas. About 5% of general population and 10% of the adult population has been reported carrying this virus. In this study, 5.57% had Hepatitis-B and 19.76% had Hepatitis-C. The results of our study are comparable to studies done in different cities of Pakistan, Karachi HBV 6.5% and HCV 11.3%.[9], Ralwapindi HBV 2.8% and HCV 7.5%.[10] Nawabshah HBV 8.6% and HCV 11.6%.[11] and Jacobabad HBV 9.33% and HCV 14%.[12] Two studies done in Japan, one shows seropositivity of HBV 1.8% and HCV 7.1%, while other shows seropositivity of HCV 16.9%.[13,14] According to Cloud Hay & his colleagues, the prevalence of Hepatitis-C was 11.26% which is comparable to our study.[15] Ali and his associates[16] reported 5.1% patients suffering from Hepatitis-C in Gadap area. Leis and his co-workers[17] reported the prevalence of 35% in HCV & 4% in HBV in their patients operated at John Hopkins.

In this study, ratio of male is higher than female, in HBV 2.3% male & 1.3% female while in HCV 7.44% males & 5.36% females are reported. HCV were found more in the 4th decade of life. These factors are comparable to the study conducted by Merik and his co-workers at Greece.[18]

Most common route of transmission of Hepatitis B&C virus is parenterally, mainly as a result of contaminated blood transfusion or blood to blood contact, injury and

contaminated sharp instruments, with infected needle pricks or sexual contacts and also through perinatal vertical transmission from mother to child.[19]

The risk factors recognized in this study are summarized in Table-III. The most common risk factor was the use of contaminated syringes. History of I/V & I/M drug injections was found in 40.66% in this study in HBV & HCV reactive patients. Same risk factor is most frequently seen in the study by Zubia & Co-workers. They have noted history of parenteral therapy in 96% patients with HBV and 95.4% patients with HCV.[20] An average risk of transmission of HCV after needle prick injury is estimated to be about 0.3 – 1.8%.[21] with high prevalence of Hepatitis in 3rd world countries, exposure for the high risk group is much more in our local literature. In one local study, high frequency of injection use was found in 94% of HBsAg reactive patients and 92.5% in anti-HCV reactive patients.[22]. History of blood transfusion was present in 11.33% of HBS Ag and anti-HCV positive patients in this study. In one local study, history of blood transfusion was found in 74% of HBV seropositive and 40% HCV seropositive patients, which is quite high.[22] In our study, previous surgical history was also present in 6% and history of dental procedure was present in 8.66%, which is less than the study by Moosa and co-workers, who found past surgical history in 28.8% and history of dental procedures in 41.3%.[22]

In Pakistan like many other 3rd world countries, more than 80% of deliveries are conducted by traditional birth attendant in unhygienic conditions and without proper sterilization, which makes females more vulnerable to HBV & HCV infection. There are also millions of quacks and dental practitioners especially in rural area of Pakistan. They are using same syringes for more than one patients and surgical instruments without proper sterilization. In a multivariate analysis, three variables are significant regarding the prevalence of the disease, intravenous drug abuse, blood transfusion and low socioeconomic status.[23,24,25] In order to prevent Hepatitis, as an epidemic in our country, prevention and counseling should be specified in general. The awareness of its presence and the magnitude of risk should be known to patients as well as to health care providers. Surgeons, Theatre Staff, Nurses and other health care workers are at greater risk of acquiring these infections.

The study has its limitations that it is a hospital based study and its application to general population regarding the frequencies of HBV and HCV could not be done. Being a hospital based study, the frequencies of both viruses are higher than reported from epidemiological studies. Nevertheless it highlights the increased risk to the HCV from them and implementation of measures to reduce exposure.

CONCLUSION

High prevalence of HBsAg and Anti-HCV was found in patients pre-operatualy. Our message is that ***"Prevention is better than cure"***. So it is essential to prevent the spread of Hepatitis B&C by screening every patient before surgery and counseling of patients. The doctors and paramedical staff follow proper ethical practice ensuring use of sterile disposables where indicated and protecting patients and themselves from these viral infections.

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