FREQUENCY OF HEPATITIS B AND C IN PATIENTS UNDERGOING ELECTIVE SURGERY

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Background: Viral Hepatitis (HBV and 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. This study was carried out to assess the frequency of Hepatitis B and C infection in patients undergoing elective surgical operations, and to evaluate the associated risk factors. **Methods:** This was a descriptive study, conducted at Surgical Department of Ghulam Muhammad Mahar Medical College Hospital, Sukkur, from April 2009 to March 2010. All patients who were admitted in the Surgical Department for elective surgical operations 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 ELISA. **Results:** Total 913 patients were admitted in Surgical Department during study period for elective operations and were screened for HBsAg and Anti-HCV. Out of these, 572 (62.65%) were male and 341 (37.34%) were female. Mean age of these patients was 40 years. After screening, 33 (3.61%) patients were found HBsAg positive and 117 (12.8%) were Anti-HCV positive, while 9 (0.98%) were positive for both. Hepatitis-B was found in 21 (2.3%) males and 12 (1.3%) females, and Hepatitis-C was 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:** Our message is: '*Prevention is better than cure'*. It is essential to prevent spread of Hepatitis B and C by screening every patient before surgery and counselling the patients. The doctors and paramedical staff must follow proper ethical practice ensuring use of sterile disposables where indicated and protecting patients and themselves from these viral infections.

Keywords: Hepatitis-B, Hepatitis-C, Screening, Surgical patients

INTRODUCTION

Viral Hepatitis 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 slowly and carries a high risk of chronic liver disease (70–80%) and latter Hepatocellular carcinoma.[5] Hepatitis B and 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 and C with the prevalence of 10% for Hepatitis B and 4–7% for Hepatitis-C. Hepatitis is transmitted by contaminated blood transfusion, un-sterilised syringes and the surgical instruments, dental surgery, sexual contact, drug abuse, shaving razors, tooth brushes and shaving by barbers. Transmissions of blood borne HBV and HCV from health care professionals to patients have also been documented.[7,8] Number of patients with Hepatitis B and C being received for elective and emergency operations has increased tremendously. Thus healthcare providers especially surgeons and operation theatre staff has significantly high risk of infectivity along with further transmission of the disease if pre-operatively screening and standard precautions are not followed strictly.

This study was carried out to find out the frequency of Hepatitis B and C in patients admitted for elective surgery in Surgical Department.

PATIENTS AND METHODS

This study was conducted in the Department of Surgery, Ghulam Muhammad Mahar Medical College Hospital, Sukkur during a period of last one year from April, 2009 to March, 2010. 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 and APTT, and 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. Screening for Hepatitis B and C were advised to family members of affected patients. All admitted patients who were not vaccinated and not suffering from Hepatitis B were also advised for vaccination.

RESULTS

Nine hundred and thirteen (913) patients were admitted in Surgical Department during a period of last one year for elective operations and were screened for HBsAg and Anti-HCV. Out of these, 572 (62.65%) were males and 341 (37.34%) were females. The age of these patients was between 11 and 70 years. After screening, 33 (3.61%) patients were found HBsAg positive and 117 (12.8%) were Anti-HCV positive, while 9 (0.98%) were positive for both. Hepatitis-B was found in 21 (2.3%) males and 12 (1.3%) females. Hepatitis-C was found in 68 (7.44%) males and 49 (5.36%) female patients. Ninety percent 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.

Age distribution of the patients is shown in Table-2. Risk factors identified in seropositive patients are shown in Table-3. No patient had history of vaccination against HBV.

Table-1: HBsAg and Anti-HCV Reactive patients (n=913)

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

Table-2: Age distribution of HBsAg and Anti-HCV Reactive patients

Age (years)	HBsAg n=33	Anti HCV n=117
01–10	0	0
11–20	4	3
21–30	7	6
31–40	9	43
41–50	5	25
51–60	4	21
61–70	4	22

Table-3: Risk Factors identified in Hepatitis B&C Reactive Patients (n=150)

Risk Factors	No. of patients	Percentage
Barber Shave	37	24.66
Dental Procedure	13	8.66
Surgical Procedure	9	6.0
Parental Injections	61	40.66
Blood Transfusion	17	11.33
History of Contact	11	7.33
Drugs Addicts	2	1.33

DISCUSSION

Hepatitis B and C are global problems. The incidence of Hepatitis B and 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, 3.61% had Hepatitis-B and 12.8% 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], Rawalpindi 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 Chaudhary IA and 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. Weis and his co-workers[17] reported the prevalence of 35% in HCV and 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 and 1.3% female while in HCV 7.44% males and 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 and 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 recognised in this study are summarized in Table-3. The most common risk factor was the use of contaminated syringes. History of I/V and I/M drug injections was found in 40.66% in this study in HBV and HCV reactive patients. Same risk factor is most frequently seen in the study by Zubia *et al*. They have noted history of parenteral therapy in 96% patients with HBV and 95.4% patients with HCV.[9] An average risk of transmission of HCV after needle prick

injury is estimated to be about 0.3–1.8%.[20] 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.[21] History of blood transfusion was present in 11.33% of HBsAg 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.[21] 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%.[21]

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 sterilisation, which makes females more vulnerable to HBV and HCV infection. There are many 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 sterilisation. In a multivariate analysis, three variables are significant regarding the prevalence of the disease, intravenous drug abuse, blood transfusion and low socioeconomic status.[22–24] In order to prevent Hepatitis, as an epidemic in our country, prevention and counselling 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. The frequencies of both viruses in our study group 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-operatively. Our message is: *"Prevention is better than cure"*. It is essential to prevent the spread of Hepatitis B and C by screening every patient before surgery and counselling 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. At the same time, it is the prime duty of print and electronic media to enhance public awareness about the risk factors and methods of spread of these infections.

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