Hepatitis B and C Virus Infection in Surgical Practice

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ABSTRACT

Objective To determine frequency of hepatitis B and C virus infection in surgical patients and its relation to already reported risk factors.

Study design Case series.

Place & Duration of study Department of Surgery Civil Hospital Karachi, from May 2012 to September 2012.

Methodology All patients who were scheduled for surgical procedures were screened for HBsAg and anti-HCV using immunochromatography (ICT). The variables already known for the possible transmission were also inquired. The data was entered into a Performa and entered into SPSS version 17. Descriptive statistics were used for computation of the results.

Results Out of the total 662 patients, 325 (49.1%) were males and 337 (50.9%) females. Mean age of patients was 37.52 year. Hepatitis B surface antigen (HBsAg) was positive in 19 (2.9%) patients of whom 12 (63.15%) were males. Hepatitis C (anti-HCV) was found in 45 (6.8%) patients of whom 24 (53.33%) were females. Among HBsAg positive patients, 17 (89.47%) had history of intravenous injections; similar history was found in 44 (97.77%) anti-HCV positive patients.

Conclusions Frequency of hepatitis B was slightly more than hepatitis C in surgical patients. Routine serological screening prior to surgery should be made mandatory so that health care workers especially surgeons can take precautions before surgery.

Key words Hepatitis B, Hepatitis C, Surgical patients, Preoperative screening.

INTRODUCTION:
It is estimated that approximately 2 billion people are infected with hepatitis B virus.1 It is one of the major causes of morbidity and mortality as an outcome of related acute and chronic liver diseases, cirrhosis and hepatocellular carcinoma.2 According to WHO more than 170 million people are infected with Hepatitis C virus and about 3-4 million people get infected each year. Hepatitis C is the leading cause of chronic liver disease with worldwide prevalence of 3%.3 National Survey on Prevalence of Hepatitis B and C in General Population of Pakistan was conducted from 2007 to 2008, and HBs Ag was found positive in 2.5% and anti HCV in 4.9% people. It is estimated that almost 12 million people in Pakistan are living with these viruses.4

A study conducted in surgical patients reported that HBsAg was positive in 5.0% patients and anti-HCV antibody in 12.0% patients.5 Thus there are increased chances of transmission of these infections from patients to health care providers and surgeons. Health care workers like surgeons are at higher risk of contracting HBV and HCV infections during surgical procedures which may result in serious complications. In this regard it should be recommended that every case undergoing surgery should be screened for both hepatitis B and C virus. This study was carried out to find the frequency of hepatitis B and C and its
relation with already known associated risk factors in patients admitted in surgical departments as a part of periodical surveillance.

METHODOLOGY:
This case series was conducted in the Department of Surgery Civil Hospital Karachi, from May to September 2012. The study was started following approval from institutional review board of Dow University of Health Sciences. All surgical patients were included in the study regardless of the age, gender, ethnicity and residential characteristics. All patients were screened for HBsAg and anti-HCV using immunochromatography (ICT-kit method).

The performa was designed to gather information about demographic characteristics like age, gender, educational status and socioeconomic status etc and information about seroprevalence for HBsAg and anti-HCV antibody. Another part of the data collection form had closed ended questions for risk factors like infection in family members, history of receiving intravenous injections, blood transfusion, blood donation, shaving from barber, ear nose piercing and tattooing etc. The data were entered and analyzed on Statistical Package for the Social Sciences (SPSS) version17.0 for Windows (SPSS Inc. Chicago, IL, USA). Descriptive statistics of socio-demographic variables like age, sex, education and other characteristics of the population were computed.

RESULTS:
Six-hundred-sixty-two patients admitted in surgical departments during the study period were the subject of the study. Out of the total 325 (49.1%) were males and 337 (50.9%) females. The age of the patients ranged from 8 year to 90 year, with mean age of 37.52 years. The majority of the patients were illiterate and belonged to low socioeconomic status. The details of demography are illustrated in table I.

Hepatitis B surface antigen (HBsAg) was positive in 19 (2.9%) patients. This included 12 (63.15%) males and 7 (36.84%) females. Hepatitis C (anti-HCV) was found in 45 (6.8%) patients of whom 21 (46.66%) were males and 24 (53.33%) females. Among HBsAg positive patients, 17 (89.47%) had history of intravenous injections; similar history was found in 44 (97.77%) anti-HCV positive patients. The details of related known risk factors is given in table II.

DISCUSSION:
The frequencies of HBsAg and anti-HCV positive patients in this study were 2.9% and 6.8% respectively. This is comparable to a study conducted in Jamshoro Pakistan where frequency was reported as 2.5% for HBsAg and 9.04% for anti-HCV.6 Another study among blood donors showed that frequency of HBsAg was 3.9% and anti-HCV was 5.9%.7 The frequency of hepatitis B in general populations of Lahore was 8.06% as reported by Nafees et al.8 Frequency of hepatitis C was 4.9% and 4.95% respectively in a study by Anwar MI et al and Yasir W et al.9,10 The results for hepatitis B is almost three times greater than our study. From Larkana the frequency of hepatitis B was reported as 4.8%.10 Khokhar et al found 5.31% prevalence for hepatitis C virus in general population.11 These figures are comparable with our study. In another city of Punjab, the Rawalpindi, 3% prevalence for HBsAg was reported by Farooq et al.12 This figure is similar to our results though in a previous study from Karachi the frequency of hepatitis B was reported as 4.5%.13 Overall from the province of Punjab a higher prevalence of HCV was reported in comparison to Sindh.14

One of the major factors responsible for transmission of these infections in Pakistani hospitals is the lack of proper pre-operative screening of this viruses.15 The transmission of these infections from patients to others can be prevented by pre-operative screening. The study conducted in Karachi found that health care personals were 5-6% positive for anti-HCV and 2.4% for HBsAg.16
It has been identified that the contaminated syringes used for therapeutic purposes by untrained non-medical personnel have become a major risk factor for HCV transmission in interior Sindh.\(^1\)\(^7\) The history of therapeutic intravenous injections was more frequent in our study as it was present in majority of cases of Hepatitis B and C positive patients which is comparable to study conducted in interior Sindh. Injections in healthcare settings have become a major mode of transmission of HBV and HCV in developing countries.\(^1\)\(^8\) Blood transfusion is one of the most important risk factors for both HBV and HCV transmission. Developed countries have made strict guidelines for blood transfusions which must be done after proper screening. This helped in reducing the infection rate. On the other hand in developing countries monitoring is lacking. Thus infection rate is high.

Many risk factors have been identified in literature for the transmission of hepatitis B and C. In our study same factors were reported though these are not put to statistical verification as it was a descriptive study. Other limitations of this include was being hospital based so generalization can not be made. The serology in this study was done by Immunochromatography and none of the results were confirmed by ELISA which is more authentic test. 

CONCLUSIONS:
Frequency of hepatitis B and hepatitis C in surgical patients was similar to that reported in general population. Routine serological screening must be made mandatory before undertaking any surgical procedure.

REFERENCES:
6. Rajput MR, Shaikh MA, Solangi AR, Bano R, Rind A, Rind S. Risk factors and frequency of hepatitis B & c viruses at Liaquat University Hospital Jamshoro Sindh

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<thead>
<tr>
<th>Table II: Risk Factors Present in HBsAg and Anti-HCV Positive Patients</th>
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<td><strong>Reported Risk Factors</strong></td>
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<td>History of IV Injections</td>
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<td>History of Blood Transfusion</td>
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<td>History of Dental Procedure</td>
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<td>Ear-nose piercing</td>
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