

EDUCATION

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SCREENING FOR HEPATITIS B & C: A PREREQUISITE FOR ALL INVASIVE PROCEDURES


DR. MUHAMMAD ZAHEER HAIDER, MBBS, FCPS

Classified Anaesthesiologist
PAF Hospital, Sargodha

Dr. Aamir Mehmood Malik, MBBS, FCPS, MCPS

Classified Anaesthesiologist
PAF Hospital, Sargodha

DR. NASEEM AHMAD, MBBS, MCPS, FCPS

Classified Anaesthesiologist
Armed Forced Institute of Urology,
Rawalpindi.

DR. Mamoona Javed, MBBS, FCPS

Classified Gynaecologist
PAF Hospital, Sargodha

DR. MUHAMMAD YASRAB, MBBS, FCPS

Classified Anaesthesiologist
PAF Hospital, Sargodha

INTRODUCTION

(smzaheer_4@yahoo.com) Viral hepatitis (HBV & HCV) one of the single most important cause of chronic liver disease in Pakistan and World Wide is now spreading beyond endemic dimensions. Number of patients with hepatitis being received for elective and emergency procedures has increased tremendously. Thus health care providers especially operation theater staff has significantly increased risks of infectivity along with further transmission of the disease, if preoperatively screening and standard precautions are not followed strictly. This makes the preoperative screening for hepatitis B & C one of the most important investigations so that standard precautions can be taken to avoid further hazards of disease.

Hepatitis B & C viruses (HBV & HCV) are known cause of infectivity leading to significant morbidity and mortality world wide especially in the developing countries like

Pakistan¹. The hepatitis B virus (HBV) was first isolated in 1963². It has infected over two billion individuals world wide. More than 520,000 die each year from HBV related acute and chronic liver disease³. The hepatitis b surface antigen (HBsAg), a serological marker for HBV was first demonstrated by Blumberg in 1963⁴. While hepatitis C was first cloned in 1989^{5,6}. Nearly 500million people are estimated to be infected with hepatitis C world wide⁷. Presence of anti HCV and HbsAg indicates that patient may harbor acute hepatitis leading to serious complication of fulminant hepatitis and chronic hepatitis with symptomatic carrier state which may progress to serious consequences like cirrhosis and hepatocellular carcinoma^{8,9,10}. Once cirrhosis has developed, the ten year survival is about 80%. However the rate of development of complications of cirrhosis over the same time period is about 40%¹¹.

Hepatitis B & C are commonly transmitted by per-

cutaneous or permucosal exposure to contaminated blood or blood derived body fluids and as little as 0.01 ml can transmit infection making them a big culprit¹²/ special precautions therefore should be taken to check its transmission.

Preoperative screening for hepatitis B & C is not routinely performed even for elective surgery in our country because of multiple factors. Major factors are, lack of public awareness about the disease, inadequate funding for health care and poor health facilities through the country. During the preoperative period all patients must be screened with enzyme Linked Immunosorbent Assay (ELISA) for HbsAg and anti HCV. ELISA has a sensitivity of 97%. All the information during the pre-anesthesia assessment must be recorded on a specially designed performa, which includes current, and previously known hepatitis profile, risk factors and history of vaccination apart from demographic.

Pakistan is highly endemic for hepatitis B & C. Many studies were conducted in Pakistan during the past decade and guidelines for the prevention and control of hepatitis were formulated. Even then the graph of hepatitis B & C positive patients is going up in our population. The overall incidence in general Pakistani population ranges between 4-25%^{13,14}, which is alarming. According the prevalence of HBsAg and anti HCV in surgical patients is also on rise, thus putting the operation theater staff on greater risks of transmission of disease. In a study by Bhopal FG et al¹⁵ out of 300 surgical patients 18.66% were positive for HBV and 6.33% for HCV. Results from another study¹⁶ showed 16.24% for HBsAg and 8.66% for HCV antibody positive patients respectively. A study by Haroon Khan et al¹⁷ which enrolled 695 patients reported 4.5% patients were anti HCV positive.

In an epidemiology study of 34,336 patients from Japan the prevalence of HBV sero-positivity was found 1.8% while HCV sero-positivity was 7.1%¹⁸. In another study from the same country prevalence for anti HCV was higher 16.9%¹⁹. A study from Turkey²⁰ reported the prevalence of HBsAg 6.6% and anti HCV was 2.2%. A

more recent study of 142 patients screened before surgery showed that 11.26% were positive for HCV while 2.11% HBsAg positive²¹.

FACTORS CONTRIBUTING TRANSMISSION OF HEPATITIS B & C

There are number of factors contributing to transmission of hepatitis B & C but contaminated needles and unscreened blood products are the major factors. Contaminated needles and surgical instrument can transmit infection even after month being soiled by virus²². Infectivity of HBV is eight times greater than HCV. An average risk of HCV transmission after needle stick injury is estimated to be about 1.8%²³. In a study from USA parenteral drug use was reported to be the major risk factor in majority of HCV positive cases²⁴.

Hepatitis B & C virus infection is transmitted mainly by blood products. Different studies published on Pakistani blood donors have shown prevalence of HBsAg and anti HCV ranging from 3.4-14%²⁵⁻²⁸. Previous surgical, dental procedures, are also the major contributing factors for transmission of this growing menace.

Surgeons, anesthetics, theater staff, nurses and other health care workers are at greater risk of acquiring these infection²⁹. Rehman K et al²⁵ and Pirzado et al³⁰ has reported HBsAg was positive in 5-9% health care personnel.

Screening for hepatitis B & C is still not being performed routinely in most of government and public sector hospitals because of number of factors. Lack of awareness, poor health education, poor test facilities and high cost of the tests are some of the major contributing factors. Due to tremendous increase in surgical workload, operation theaters then could be one of the main source of transmission of hepatitis B & C. This can be easily avoided by making the operation theater staff alert by preoperative screening of hepatitis b & C, so that proper standard precautions can be taken.

RECOMMENDATIONS

Hepatitis remains as a significant occupational hazard to

all health care professionals especially surgeons, anesthetics and operation room assistant. Following primary preventive strategies are strongly recommended to safeguard operation theater staff and prevent further transmission of disease:

1. All patients must be routinely screened for hepatitis B (HBsAg) and hepatitis C (Anti HCV) prior to any invasive procedure irrespective of the cost and operation theater staff should be informed well in advance.
2. Greater emphasis, should be laid on public health education particularly creating awareness about the risk factors of hepatitis B & C, early diagnosis, prevention and control to minimize its transmission.
3. All the surgeons, theater nurses and health care staff should be vaccinated and their anti body status should be checked on regular basis.
4. Health care professionals doing invasive procedures in general and dental surgeons in particular should be advised to use sterilize instruments and equipments to eliminate the chances of transmitting these infections.
5. Surgeons, anesthetics and operation theater staff must take standard precautions and use barrier techniques while operating upon infected patients.
6. Preferably separate operation theater and electro medical equipment should be used for infected patients.
7. Only screened blood products should be transfused.
8. Used disposable syringes and waste material of infected patients should be disposed off by incineration, eliminating the chance of their re-use and further transmission of infection.
9. Standard dissatisfaction procedures for operation theater sterilization and autoclaving of instruments should never be compromised at any cost and strict discipline must be maintained in this regard.
10. Vaccination against hepatitis B has now been included in EPI. However, all adolescents and adults should also be vaccinated.
11. The government initiative to formulate the national action plan for hepatitis is laudable but it needs to be further strengthened by using the mass media.
12. Standard laboratory facilities must be provided at root level e.g., basic health units, for easy and cost effective screening of hepatitis B & C.

CONCLUSION

There is significant sero-prevalence of hepatitis B & C in surgical patients. Risk factors include re-use of contaminated syringes, contaminated surgical instruments and blood products. Lack of proper precaution while managing infected patients and lack of vaccination among surgeons and health care workers leads to transmission of infection from patients to them and vice versa. A protocol should be prepared regarding strict screening and all patients should be routinely screened for hepatitis B (HBsAg) and hepatitis C (anti HCV) prior to any invasive procedure.

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