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# FREQUENCY OF HEPATITIS B AND C CARRIER STATE IN OBSTETRIC AN GYNACOLOGICAL PATIENTS AT TEACHING HOSPITAL KHAIRPUR

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**ABSTRACT**

**Objective:** To determine the frequency of carriers of hepatitis B and C viruses among the obstetric and gyneacological patients. The incidence of vertical transmission and to ascertain the risk factors associated with their transmission.

**Place and duration:**Gynaecology/Obstetrics Department, Ghulam Mohammad Mahar Medical College hospital Khairpur, over a 1- year period from January to December 2010.

**Study design:** Prospective observational study.

**Methodology:** During one year period the total Obstetrics and Gynaecological admission was 4938, comprising of an obstetrical patients of 4107 while 831 was gynaecology Surgery patients.The study population was recruited by simple convenient sampling . All patients were routinely screened by Enzyme Immunoassay for hepatitis B surface antigen (HbsAg) and anti-hepatitis C (anti-HCV) on venous blood samples. Liver function and carrier profile tests were performed on mothers who were positive for HBsAg. Babies of mothers with HbsAg were tested at birth for both HbsAg and HbeAg.

**Results:** Total Hepatitis B and C positive cases was 558 (11.3%).Hepatitis B virus was detected 250 (6%) in obstetrics and 85 (10%) in gynaecological patients. Hepatitis C virus was detected in 108 (2.6%) obstetric and 115 (13.8%) in gynaecological patients. Ten patients tested positive for both HBV and HCV infections. Babies born to mothers with HBV or HCV infections tested negative.

Unsafe surgery, injections, sexual contact, and inadequately screened blood transfusion were the main underlying causes of infection.

**Conclusion:** The seropositive for HBV and HCV among women not only at risk of having cirrhosis and liver cancer later on , but also are a continous threat to their offspring and care providers, so strategies need to be developed by the relevant authorties for creating awareness and to vaccinate them.

**Key words:** HBV, HCV, Gynaecology, Obstetric, Khairpur, carriers.

## INTRODUCTION

Chronic hepatitis due to hepatitis B virus (HBV) and hepatitis C virus (HCV) infection is a major public health problem globally. Prevalence of HBV is over 10% in the Asia – pacific region and two thirds of 350 million people infection with HBV live in this area.[1]

Similarly, 170 million people of the world's population have HCV.[2] Prevalence of chronic HCV in the Asia – pacific region varies between 4 and 12%.[3] Pakistan remains in the intermediate HBV prevalence area with 4.5 million estimated carriers and a carrier rate of 3-4%. [4] Based on an average prevalence rate of 6%, it could be estimated that approximately 10 million people are infected with HCV in Pakistan. [4] Of pregnant women in Pakistan, 8% are reported carriers of HbsAg.[5] While in Sindh high figures were seen in khairpur 6. 3%.[6]

Pakistan's Prime Minister Launched the National program for prevention and control of

Hepatitis in 2005. The program aims to achieve a 50% reduction in HBV and HCV by 2010 through behavior change communication, HBV vaccination for high-risk cases, establishment of screening, diagnosis and treatment facilities in 150 teaching and district headquarter hospitals and promotion of safe blood transfusion.[7] Unfortunately, there is still little data on the prevalence of viral hepatitis at national and provincial levels, or utilization of preventive facilities by women, despite the fact that these are available at public hospitals. The present study was conducted to determine the frequency of HBV and HCV as found on routine serological screening of obstetrical patients at booking visits and prior to elective operations in the gynaecological patients and to ascertain the vertical transmission risk.

## METHODS:

The presents study was conducted at Department of Obstetrics and Gynaecology, Ghulam Mohammed Mahar Medical Teaching Hospital Khairpur over a one year period from 1st January to 31st December 2010. It was a prospective study, based on simple convenient sampling.

A structured form regarding the presence of various risk factors leading to the acquisition of HBV or HCV was completed from patients who tested positive during routine obstetrical booking screening or at the time of delivery and pre-operative gynaecological testing. No ethical issues were involved as hepatitis screening is performed routinely as a part of the National Control Program for Hepatitis.

Serological testing was performed for the detection of HbsAg, HbeAg and anti- HCV in women's venous blood samples. The liver function tests (LFT) and prothrombin time (PT) were performed routinely on all patients who tested positive, irrespective of past or present history of jaundice. Babies of mothers with HbsAg, HbeAg and anti-HCV,with in 24 hours of birth, but prior to injecting hepatitis B immunoglobulin active (HBIG) and HBV vaccine (Passive) immunization. Unfortunately, during study period (PCR) for HCV RNA detection was not available either Obstetrical or gynpcological patients due to financial constraints. Data were analysed and cross-tabulations between various risk factors were performed on spss-10 version. P-value (<0.05) was used to determine the significance of observation.

## RESULT:

Of 4170 obstetric patients, 250 (6%) were HBV carriers, and 108 (2.6%) were HCV seropositive. Uptake of 75% patient was screening at the time of delivery, only 15% women were tested during antenatal period. Mean maternal age 34.5 years. Grand multiparity, previous history of jaundice, blood transfusion, injections and past surgical procedures were significant risk factors in obstetrical patients (Table 1).

## DISCUSSION

Pakistan falls in the intermediate category of HBV infection prevalence,[4]

according to the classification of countries as low endemic areas (< 2% general population rate of HbsAg), intermediate endemic areas (2-8% HbsAg positive) or high endemic areas (up to 78% positive for HbsAg).[8]

Our study revealed a higher prevalence of HbsAg in pregnant women than previous reports from Karachi,[9] Lahore,[4] and 8-10% in the adult Population of Pakistan.[10] In European countries, the

**TABLE-1**
**COMPARISON OF RISK FACTORS FOR HEPATITIS B AND HEPATITIS C INFECTION IN OBSTETRICAL PATIENTS.**
**n=4107**

| Risk factors | HBV ( %) | HCV ( %) | P-value |
|---|---|---|---|
| Blood transfusion (750/4107) | 110 (14%) | 60 (8%) | < 0.001 |
| History of jaundice (200/4107) | 80 (40%) | 10 (5%) | <0.001 |
| Past gyn/obs procedure (800/4107) | 90 (42%) | 101(12%) | <0.001 |
| Injections (1150/4107) | 116(10%) | 80 (7%) | <0.001 |
| No risk factor (230/4107) | 50 (21%) | 30 (13%) | <0.01 |

Gyn/obs, gynaecology and obstetrics.

More cases of HBV and HCV positive were seen in grand multi para patients (Table 2).

**TABLE 2**
**COMPARISON OF PARITY IN HBV AND HCV POSITIVE OBSTETRIC PATIENTS.**
**n=4107**

| Parity | HBV +ve | HCV +ve |
|---|---|---|
| Primi | 35 | 10 |
| Para 3+ | 95 | 40 |
| Para 5+ | 120 | 58 |

All babies delivered to HBV and HCV mothers were seronegative when testing at birth. All babies born to HBV positive mothers were vaccinated; although long term follow up was not available for carrier status of HBV or HCV, tests conducted at 6 weeks postnatally and then at 3 months were negative for anti-HCV antibodies. Of 250 HBV Carrier patients, 165 were vaginal deliveres and 83 were cesarean sections (Table 3). There were no cases of HbeAg (a determinant of infectivity) detected in either the HbsAg seropositive obstetrical or gynaecological patients.

**TABLE 3**
**MODE OF DELIVERY IN WOMEN WITH HEPATITIS B (HBV) AND HEPATITIS C (HCV) INFECTION.**

| Mode of delivery | HBV +VE | HCV +VE |
|---|---|---|
| Vaginal delivery | 165 | 70 |
| Instrumental delivery | 02 | 01 |
| Cesarean section | 83 | 37 |

Three patients were developed severe postpartum haemorrhage in HCV+ve group women. Physical examination revealed no abnormalities. Liver function tests with in the normal range. Of 831 gynaecological cases, HCV infection (n=115,13.8%) emerged more prevalent than HBV (n=85, 10%) ( Table 4). Most of the women who tested seropositive for HBV or HCV had more than one risk factor for transmission.

**TABLE 4**
**TYPE OF GYNAECOLOGICAL OPERATION IN WOMEN WITH HBV AND HCV INFECTION.**

| Operations | HBV (%) | HCV (%) |
|---|---|---|
| TAH (n=158) | 33 (20%) | 30(18%) |
| Vaginal hysterectomy (n=60) | 09 (15%) | 18(30%) |
| Manchester repair ( n=35) | 07 (20%) | 12(34%) |
| Laparatomy (n=110) | 21 (19%) | 26(23%) |
| ERPC (n=468) | 15 (3%) | 29(6%) |

TAH, total abdominal hysterectomy, ERCP, evacuation of retaind product of conception. .

Netherlands has the lowest HbsAg prevalence in obstetric population (0.7%),[11] and 1.4% in London.[20] However, an African study reported an HbsAg prevalence as high as 25% in the obstetrical population of Zimbabwe.[12] It is worth noting that a lack detection of HbeAg in our study has been supported by similar findings in a previous study.[18]

In our study, the prevalence of hepatitis C in pregnant women was low; corresponding to the overall population prevalence in Pakistan (1-4%).[13]

Another study conducted in lahore revealed a HCV prevalence of 13.5%.[4] In U.K, anti-HCV prevalence among pregnant women is 0.7%,[14] in the USA 0.2-6%,[19] and in Zimbabwe 1.6%.[21]

HCV was more prevalent than HBV in gynaecological surgical patients in our study. A previous study from Karachi reported a higher prevalence of HBV (18%) than HCV (16%) in surgical patients,[10] wereas 7% HCV prevalence was found in gynaecological surgical patients in Lahore.[13]

Of risk factors studied for acquisition of viral hepatitis, a strong correlation was found with increasing maternal age, multiparity , repeated injections, history of jaundice & blood transfusion. This correlated with similar observation of previous studies.

Negligible vertical transmission of HBV in our study supports the like hood of horizontal transmission. However, keeping in mind the long incubation period of HBV and lack of HCV RNA testing due to financial constraints (for confirmation of vertical transmission), the possibility of missed carrier status detection in infants of HCV seropositive mothers cannot be ruled out. Furthermore, the quantity of HBV and HCV DNA in the sera of mothers is directly related to the risk of antepartum transmission, especially near delivery.[16]

As HBV is the leading cause of chronic liver disease (40%) and HCV is a major cause of hepatocellular carcinoma (48%),[17] there is a need for universal screening in our population and mass neonatal vaccination programs are required. Poor knowledge about the spread of HBV and HCV infection is the main factor in their transmission.[9] Health education regarding universal screening of blood and blood products, safe sexual practices should be encouraged and promoted.

There is need for interventions such as HCV RNA detection by PCR in pregnant women as a determinant of vertical transmission risk may assist in reducing maternal and neonatal morbidity.

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