INTRODUCTION

Viral hepatitis is a life-threatening liver disease, caused by hepatitis B and C virus, and is a major public health problem, particularly in developing countries.\(^1,2\) Hepatitis B and C transmission is predominantly parental, thus the prevalence of HBV and HCV in a population can be predicted by risk factors associated with the transmission of infection such as injections, blood products transfusion, surgical procedures, body tattooing, occupational injury, sexual and vertical transmission.\(^3-5\) But many infected individuals deny history of any of these risks so that the likely source remains unidentified in some subjects.\(^6\)

In Pakistan, viral hepatitis is endemic with periodic outbreaks, however, the prevalence varies from area to area and population to population due to variability in ethnicity and socioeconomic conditions.\(^2,7\) The exact burden of the disease in Pakistan is not clear but available data suggests a steady increase.\(^2,7\) Few population-based surveys, to determine the prevalence of hepatitis B and C, have been carried out in different parts of the country, showing hepatitis B surface antigen carrier rate at 10-15% but found low prevalence of hepatitis C.\(^8,9\) In Karachi, the reported prevalence varies from 0.43-6.6% in general population.\(^10\) A study found a prevalence of 3.27% of HCV in pregnancy.\(^11\)

Both these infections lead to severe morbidity and mortality.\(^1\) Measures, such as general health education, proper screening of blood and blood products, adoption of universal precautions and screening for hepatitis B and C can help in arresting the vertical as well as horizontal spread of infection.\(^12-14\) Currently, there is an ongoing debate regarding the benefits of universal or selective screening for hepatitis B and C, especially in pregnancy.\(^15-18\)

There are many who agree to offer all pregnant women screening for hepatitis B virus, mainly because uninfected women can be vaccinated during pregnancy, thus, availing this opportunity; those found to be infected can reduce their babies' risk of vertical transmission by postdelivery administration of immunoglobulins and hepatitis B vaccine, while vaccinating their family members can help preventing the horizontal spread.\(^14,16,19\)

ABSTRACT

Objective: To determine the positive yield of universal antenatal screening of hepatitis B and C and its association with known risk factors.

Study Design: Cross-sectional, analytical study.

Place and Duration of Study: The study was conducted from January to December 2006 at Zainab Panjwani Memorial Hospital, Karachi.

Methodology: All pregnant women were screened for hepatitis B surface antigen (HBsAg) and hepatitis C virus (HCV) antibodies during anentinal period irrespective of the presence of known risk factors. Carriers i.e. women whose HBV or HCV infection positive status was already laboratory confirmed on first antenatal visit were excluded. Screening was performed by Acu-check one strip test (chromatographic immunoassay) in serum. Women screened positive were interviewed, a questionnaire was filled inquiring about the history of any risk factors predisposing to these infections. Frequency of positive cases was determined in those with risk factors and those without. The proportion was compared using Chi-square test.

Results: Of the 2592 pregnant women screened during the study period, 09 (0.34%) were HBsAg positive and 18 (0.69%) were HCV antibodies positive. None was found to be a carrier of both viruses. There were 1004 primigravidas, who had no recallable risk factor, and of those, 02 (0.19%) and 09 (0.89%) were HBV and HCV carriers respectively. No significant association of risk factors was seen in both HBV (p=0.310) and HCV (p=0.328).

Conclusion: There was no significant association of risk factors with HBV and HCV infection, thus necessitating the need of universal antenatal screening. However, large scale epidemiological/multicentric studies are required to determine the cost-effectiveness of the screening and prevention of vertical transmission.

Key words: Hepatitis. Universal screening. Pregnancy.

Hepatitis B and C: Value of Universal Antenatal Screening
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The lack of any therapeutic option in pregnancy for hepatitis C infected pregnant women make many obstetricians feel that it may not be the right time to offer it as it may lead to significant psychological morbidity for mothers with nothing to be done during pregnancy. It is considered unjustifiable by some as there is no intervention to prevent mother-to-child transmission. Keeping in view the risk these infections pose to health care professionals, many feel that prior knowledge of the carrier status of the women alerts them to adopt pertinent precautions to prevent accidental injury. In developing countries like Pakistan, because of poverty and lack of health care facilities, pregnancy is usually the only time for many women to contact a health facility. Antenatal HCV testing provides an opportunity to identify asymptomatic women with chronic disease, who may benefit from antiviral therapy following pregnancy, at a time when they are more receptive to medical intervention. Tara et al. recommended that routine antenatal screening for hepatitis C should be done in Pakistan. Thus, to arrest further spread of disease, apart from general health education about preventive measures, proper screening of blood and blood products and adoption of universal precautions by health practitioners, screening should be offered to identify carriers of hepatitis B and C virus.

Another debatable issue is offering selective antenatal screening i.e. on the basis of presence of risk factors only or universal i.e. to all. The latter has a cost-benefit issue, which needs to be considered in resource constrained settings, such as the local ones.

The aim of this study was to determine the positive yield of universal antenatal screening for hepatitis B and C and determine its association with known risk factors.

METHODOLOGY
This descriptive study was carried out at Zainab Panjwani Memorial Hospital (a secondary care community hospital), Karachi, from January to December 2006. All pregnant women who registered in the antenatal clinic were screened for HBsAg and HCV antibodies during antenatal consultation by using Acu-check one step strip test (a rapid chromatographic immunoassay for the qualitative detection of HBsAg in serum). Already known carriers on the basis of previous laboratory-confirmed viral serology, were excluded. Those screened positive were interviewed and a detailed history was taken for evaluation of risk factors like past surgeries (obstetrical, gynaecological or general surgeries), blood or blood products transfusion, vaginal delivery, evacuation of products of conception, intravenous drug abuse or history of any parenteral treatment, sexual promiscuity or carrier husband. The results were analyzed on statistical software SPSS 10 (SPSS Chicago, USA). Frequency of positive cases was determined in those with risk factors and those without. The proportion was compared using Chi-square test.

RESULTS
During the study period, 2622 women were registered for delivery at Zainab Panjwani Memorial Hospital, Karachi and 2592 were eligible for inclusion in the study. Mean age of the women was 25.7 years. The youngest was 18 and oldest was 35 years. Nine (0.34%) were HBsAg positive and 18 (0.69%) were HCV antibodies positive. None was found to be a dual carrier of both viruses. There were 1004 primigravidas in this study, who had no recallable risk factors. Out of them, 02 (0.19%) and 09 (0.89%) were HBV and HCV carriers respectively. Risk factors analysis showed (Table I) that 1551 (59.83%) had previous delivery, of which 415 (26.7%) had a history of caesarean section. Of the 1588 women i.e. women with previous delivery and primigravidas with history of risk factors, 160 (10%) had history of evacuation of retained products of conception. History of blood transfusion was present in 220 (37.41%). No significant association was seen between risk factors and HBV/HCV infection (p=0.310 and 0.328 respectively, Table II).

DISCUSSION
Viral hepatitis, especially due to HBV and HCV, is responsible for serious consequences in terms of chronicity of liver disease, hepatic failure and development of hepatocellular carcinoma.
There is a gradual increase of these infections in Pakistan. Preventive measures are determined by the epidemiological characteristics of the infection. Being mainly transmitted via infected blood and blood products, use of dirty syringes/razors, unsterilized instruments, sexual promiscuity, organ transplant, body tattooing and vertical transmission, primary preventive measures such as creating awareness about the mode of spread of these infections, use of sterilized instruments, disposable syringes, properly screened blood and blood products, avoidance of unnecessary transfusions and adoption of universal precautions by the health care professionals can remarkably help in controlling the spread of both of these infections. It is also seen that many infected individuals deny history of any of these risks so likely source remains unidentified in few subjects. Few studies are conducted to assess the value of using presence of risk factors only as a criteria to offer screening in order to identify infected individuals. This study was conducted with an aim to determine the positive yield of universal antenatal screening. Seroprevalence of HCV and HBsAg in Pakistan is found to range from 0.7-20% and 10-15% respectively. Of the normal individuals of Karachi, 3% are HBsAg positive. This study found a seroprevalence of 0.69% for HCV and 0.34% for HBV in pregnant women attending the antenatal clinic. Difference in results may be because the studies for seroprevalence are done in general population, mainly in socioeconomically poor areas, while this study was done on pregnant women attending antenatal clinic in a major city with better socioeconomic status. It was seen that 22.2% of the HBV reactive women and 50% of the HCV positive individuals had no identifiable risk factors showing that many of the cases would have been missed if risk factor was used as a criteria to offer screening. Risk factors were found to be not significant in identifying infected individuals. Thus, using risk factors alone as a criteria to offer screening may result in many of the cases being missed, as many infected individuals may have no recallable risk factor.

Two hundred and twenty (37.41%) women had history of blood transfusion with only one (0.45%) being a carrier of HCV; the reason could be the use of only properly screened blood from licensed blood banks. This, thus, emphasizes the fact that awareness and identification of the problem and introduction of measures to prevent its spread can help in controlling the spread of this health problem.

CONCLUSION
There was no significant association of risk factors with HBV and HCV infection, thus, necessitating the need of universal antenatal screening. Large scale epidemiological/multicentric studies are required to determine the cost-effectiveness of the screening and prevention of vertical transmission.

REFERENCES


