Original Research Article

A study to understand maternal and fetal outcome of jaundice in pregnancy

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Abstract

Background: Incidence of jaundice in pregnancy, including underlying chronic liver diseases, is 3–5%. However, the maternal mortality rate in some conditions can be as high as 18% in acute fatty liver of pregnancy and 22% in hepatitis E in pregnancy. **Objectives:** This is an observational study of the demographics, obstetrical profile, aetiology, maternal morbidity, mortality and neonatal outcomes in pregnancies complicated with jaundice. **Materials and Methods:** This is an observational study conducted in Department of Obstetrics and Gynaecology of a tertiary care hospital from June 2012 to November 2014. All such patients were prospectively followed throughout the pregnancy and intrapartum period and their outcomes were studied. **Results:** Most of the cases of jaundice in pregnancy were seen in primigravida and age group of 20.1-30 yrs. Hepatitis was the most common cause (12.79%) of jaundice in pregnancy. The most common presenting symptom was abdominal pain in 84.88% . 95.35% of the patients delivered, 48.85% had preterm delivery and 46.5% of patients delivered at term. In our study maternal mortality due to jaundice is 23.25%. which is 12.57% of overall mortality. **Conclusion:** Jaundice in pregnancy is mainly due to viral hepatitis. It is very high in lower socio-economic, densely populated urban slums. Special efforts should be made to counsel and educate the mothers about initial symptoms and preventive measures for viral hepatitis. Patients along with the relatives should be informed about the symptoms of severe pre-eclampsia to combat these preventable causes of maternal mortality.

Keywords: Jaundice, Hepatitis E, Maternal mortality, Preventable

Introduction

The word 'Jaundice' is derived from the French word 'Jaune' meaning yellow. By definition (Oxford dictionary) jaundice is yellowish discolouration of skin and sclera because of increase in serum bilirubin. Jaundice is the excess accumulation of bile pigments in the blood stream and bodily tissues that causes a yellow to orange and sometimes even greenish discoloration of the skin, the whites of the eyes, and the mucous membranes. The degree of coloration depends on the concentration of bile pigment (bilirubin) in the blood, its rate of tissue diffusion, and the absorption and binding of bilirubin by the tissue. Jaundice is classified as unconjugated, hepatocellular and cholestatic. Alterations in normal physiological and hormonal profiles occur throughout pregnancy[1-10]. Moreover, changes in liver biochemical profile are normal in pregnancy. However, up to 3% of all pregnancies are complicated by liver disorders. Jaundice in pregnancy carries a grave prognosis for both the foetus and the mother. It is responsible for about 60% of perinatal mortality and about 14% of maternal mortality. The hemodynamic, hormonal and immunological changes unique to pregnancy not only alter the course of both acute and chronic liver disease in pregnancy, but they may in turn affect the outcome of pregnancy. The hepatic functions during pregnancy are affected by increased serum oestrogen and progesterone levels. Physical findings such as palmer erythema, spider angiomas which may suggest liver disease, may be found normally during pregnancy. The present study analyses the cause and feto-maternal outcome in pregnancies which are affected with jaundice[11-25].

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Jaundice in pregnancy is an important medical disorder, more commonly seen in developing countries than developed ones. It has multi-factorial etiology. It could be peculiar to pregnancy like hyperemesis gravidarum, acute fatty liver of pregnancy, cholestatic jaundice of pregnancy and jaundice complicating hypertensive disorders of pregnancy. It can be unrelated to pregnancy in patients of infective causes like viral hepatitis and malaria. It can be due to gall stones, certain drugs administered during pregnancy or associated with pregnancy in patients of chronic liver diseases.

Aims and objectives

1. To study the outcome of maternal jaundice in pregnancy.
2. To study the effect of jaundice on fetus.
3. To study the maternal and perinatal mortality associated with jaundice in pregnancy
4. To study the complications of jaundice in pregnancy
5. To study the outcome of labour in pregnancy complicated with jaundice

Materials and methods

This study was carried out from June 2012 to November 2014. 86 patients were included with history of amenorrhea and increase serum bilirubin (>2mg%). All such patients were prospectively followed throughout the pregnancy and intrapartum period and their outcomes were studied. All the patients underwent clinical examination with complete case history proforma and questionnaire, complete blood count, liver function test, coagulation profile, hepatobiliary-abdominal and foetal ultrasonography. Apart from these when required additional investigations to know exact aetiology of liver disease like viral hepatitis markers were carried out. In some Patients due to less admission- death interval viral marker has not been sent. Advice from internal medicine department was taken for comprehensive management of the patients. Critically ill patients were managed in intensive care unit.

Results

During the period from June 2012 to October 2014, 86 cases of jaundice were admitted in our institute. These cases were analysed with regards to sociodemographic profile and maternal and fetal outcome. The maximum number of patients in our study belong to age group 20.1-30 yrs (79%). In our study majority of the patients belong to Urban area (59%). In our study 81.4% of the patients were from lower socio economical class. It was observed that 30.23% of patients were illiterate, 52.33% had primary education and 11.62% of patients had secondary education. This result might be because, with higher educational level, higher sanitary measure comes, which lessens chances of faecal-oral contamination. The most common presenting symptom was abdominal pain in 84.88%. This was followed by yellowish discoloration of urine, sclera and skin in 44.18%, nausea and vomiting in 5.81%,fever in 12.8%, itching in 12.8%, altered sensorium in 3.48%. More than one symptom was found in each patient. In our study 4.65% of patients were HBsAg positive, 4.65% of patients were HAV positive and 50% were HEV positive. Majority of patients (50%) were HEV positive which is most common hepatitis among adults. Among 4 HBsAg positive patients 3 patients were infected by blood transfusion and 1 by sexual transmission. In 38.37% (33) patient's markers were negative. This is because these patients may be in incubation period or there may be other cause like bacterial infection, PIH, HELLP, cholestatic jaundice of pregnancy. In 5.81% patient's marker were not sent as they came in dire emergency & in circumstances when sample might not have been taken. Among the 14 patients with low platelet count 4 patients had HELLP Syndrome. In these patients viral marker were negative. 38 patients had raised PT, APTT. Among them 30 patients had raised FDP and D dimer. Most common cause of jaundice was Viral hepatitis as seen in 55.81% of the patients. Among those with Viral hepatitis, 50% patients had HEV infection. Infective Hepatitis accounted for 13.94% of cases. Cholestatic jaundice accounted for 12.79% of cases. Preeclampsia, Eclampsia and HELLP syndrome accounted for 13.96% of cases. Sickle cell anemia was seen in 2.32% of cases. 1 patient remain undiagnosed (Fig 1). Out of 57 patients 20.93% of patients had single blood & blood component transfusion and 45.35% of patients had multiple blood & blood component transfusion. 66.28% of patients required blood transfusion so management of jaundice with pregnancy should be done in a tertiary centre where blood component facility is freely available. In our study 76.75% patients delivered vaginally,18.6% by caesarean section. Caesarean section was done due to obstetrics indication. Among 66 patients 1 patient had instrumental delivery. Most common complication was hepatic encephalopathy (Fig 2) occurring in 15.11% of cases followed by renal failure (6.97%). Eclampsia, preeclampsia, HELLP Syndrome are not considered in complication as they are the cause of jaundice. In our study maternal mortality due to jaundice is 23.25%. which is 12.57% of overall mortality. Various studies have reported 12-29% maternal mortality due to jaundice in pregnancy. Among 23.25% death due to jaundice, majority of death (60%) death were due to HEV infection, 30% were due to infective hepatitis, 20% due to HELLP Syndrome. Figure 3 shows that, out of 95.35% of the patients delivered, 48.85% had preterm delivery and 46.5% of patients delivered at term. The percentage of LBW in our institute is 13.26%. In our study LBW was found in 36.05% of babies as shown in Table 1. 15(17.44%) foetus whose mother had infective hepatitis were still born followed by pre-eclampsia (2.32%), sickle cell anemia (2.32%), HELLP Syndrome (1.16%), cholestasis of pregnancy(1.16%). This shows leading cause of still birth is viral hepatitis which is again a preventable cause.

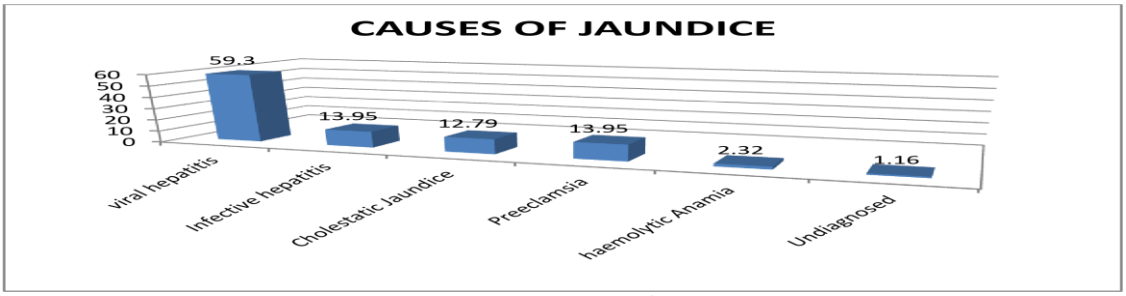

Fig 1: Most common cause of jaundice

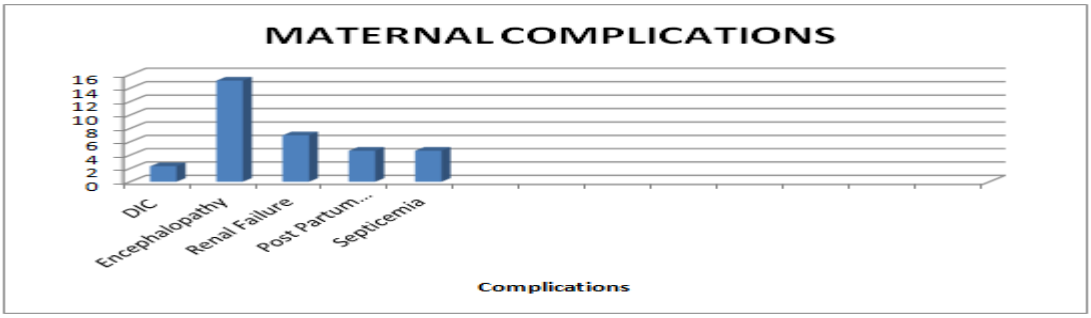

Fig 2: Maternal complications

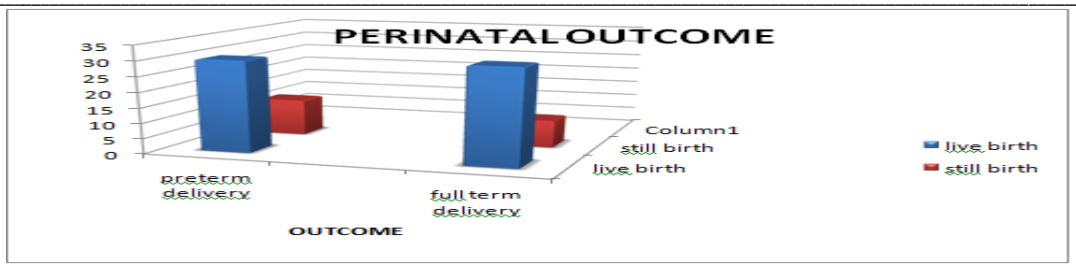

Fig 3: Perinatal outcome

Table 1: Outcome in terms of birth weight

Outcome in terms of birth weight	No. of patients	Percentage (%)
LBW<2kg	31	36.05
Normal Weight>2kg	51	59.30

Table 2: Relation of Still Birth & Cause of Jaundice

Cause	No. of still birth	Percentage
Viral Hepatitis	11	12.79
Infective Hepatitis	4	4.65
Sickle cell anemia	2	2.32
Pre eclampsia	2	2.32
HELLP Syndrome	1	1.16
Cholestasis of pregnancy	1	1.16

Discussion

The incidence of jaundice in India varies from 0.4 to 0.9/ 1000 deliveries. Jaundice and pregnancy are a deadly combination resulting in a very high perinatal as well as maternal morbidity and mortality and requires an early diagnosis and careful management. Most common cause of jaundice was Viral hepatitis as seen in 59.3% of the patients. Among those with Viral hepatitis, 50% patients had HEV infection. Acute Viral Hepatitis is a major public health problem in the developing countries. Most of the cases of Hepatitis in India have been attributed to Hepatitis E, for which it is an endemic zone[11-13]. This infection can spread in epidemics[14,15] or sporadically, especially during the warm and rainy weather seasons. The presentation of Hepatitis E during pregnancy may range from the asymptomatic to fatal in different endemic areas. A worse prognosis had been noted by various authors when Hepatitis E occurs during pregnancy. In our study maternal mortality due to jaundice is 23.25%. Which is 12.57% of overall mortality. Various studies have reported 12-29% maternal mortality are due to jaundice in pregnancy. This is high because more people become infected with this. Among 23.25% death due to jaundice, majority of death (60%) death were due to HEV infection, 30% were due to infective hepatitis, 20% due to HELLP Syndrome. The high mortality rate was comparable to most of the other studies conducted in North India, ranging from 12% to 64%. This finding is in variance from certain other studies done in other parts of the world, e.g. a study from Egypt[4] revealed a very high rate of Hepatitis E infection (84.3%), but there was not a single case of maternal mortality. Similarly, a study carried out in South India[3] showed a very high infection rate with Hepatitis E but the mortality rate was very low only 3.4%. The high sero-prevalence of Hepatitis E IgG antibody was probably protective in Egypt and South India. The sero-prevalence of Hepatitis E IgG antibody was found to be low (33.67%) in New Delhi by Begum et al,[21] probably leading to higher rates of clinical disease and maternal mortality. Many hypotheses have been offered for the differing mortality rates among pregnant women; the reasons postulated have been viral factors and host factors. There is a differing viral genotype of the HEV in different geographical areas. Genotype 1 is the most common cause of HEV in India, and a genotype shift may have caused the different presentation in South India[1]. There may be many host factors responsible for the worse presentations seen in some studies. In our study, most of the women were anaemic and undernourished, but there was statistically no significant difference in the haemoglobin values of survivors and non survivors. Jilani et al[22] have previously reported a lower CD4 count and a higher CD8 count in Hepatitis E positive pregnant women reporting in FHF, compared to HEV negative pregnant FHF women. A very important reason for the high maternal mortality in the present study appeared to be the delay in seeking medical help. This is evidenced by the large number of women reporting in hepatic encephalopathy and highly elevated bilirubin levels. The presence of features of encephalopathy at presentation was highly predictive of subsequent mortality. All the women who presented with features of encephalopathy succumbed early. This probably reflects on the delay in hospitalisation of the patient. This finding corroborates well with that of Banait et al,[24] who found higher mortality among those women reporting in a higher grade of encephalopathy. A number of social misconceptions regarding jaundice are rampant amongst the rural population in India. The use of witchcraft for treatment of jaundice is very common in the population studied. This was found to be a frequent cause of delay in the patient seeking medical help. In addition to witchcraft, there is also the prevalent use of herbal medications for the treatment of jaundice, which might actually worsen the jaundice. In our study, the trimester of pregnancy was not a predictive factor for mortality. This is in contrast to the study by Banait et al[24] who found that survival rates improved in those women who delivered as against those who did not (after excluding the women who presented in grade IV encephalopathy). This finding had led to the speculation that induction of labour might possibly help in reduction of maternal mortality. However, this hypothesis has not been confirmed due to ethical reasons. The rate of foetal wastage was found to be very high 42.6%. This was similar to the findings of Banait et al,[24] who reported an overall foetal mortality of 69%. The sample size was small: hence prevalence rate could not be calculated. There could be a selection bias as the study was carried out in a tertiary care centre, hence only the women in a very critical condition would be reporting here.

Conclusion

Jaundice in pregnancy adversely affects fetal and maternal outcome. Majority of the patients were admitted as unregistered case. Most of the patients were from lower socio-economic class. The most common cause of jaundice was viral hepatitis. Viral hepatitis due to hep E has grave prognosis with high maternal mortality. There is a high risk of preterm delivery, fetal distress, IUD and meconium aspiration leading to high perinatal mortality. Jaundice and pregnancy is a fatal combination. Both maternal and fetal complications are high with jaundice with pregnancy. Availability of blood components has revolutionized the management of jaundice. Early diagnosis and timely management of pregnancy with jaundice at tertiary care centre helps in reducing maternal and perinatal morbidity and mortality. HELLP Syndrome & jaundice due to PIH is preventable provided we

know the exact cause of it which is still not known. So only way left is to detect it vigorously & require early management in form of termination in severe PIH.

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