International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 5 Issue 1, January-2018, Impact Factor: 1.338

Maternal and Perinatal Outcome in Pregnancies Complicated By Jaundice

Vani Malhotra[1], Priyanka Narang[2], Smiti Nanda[3], Vandana Bhuria[4], Parveen Malhotra[5], Neetu Sangwan[6]

[1]Professor, Department of Obstetrics and Gynaecology, Pt. B.D. Sharma PGIMS, Rohtak-124001, Haryana (India)
[2]Junior Resident, Department of Obstetrics and Gynaecology, Pt. B.D. Sharma PGIMS, Rohtak-124001, Haryana (India)
[3]Senior Professor and Head, Department of Obstetrics and Gynaecology, Pt. B.D. Sharma PGIMS, Rohtak-124001, Haryana (India)
[4,6]Associate Professor, Department of Obstetrics and Gynaecology, Pt. B.D. Sharma PGIMS, Rohtak-124001, Haryana (India)
[5]Associate Professor and Head, Department of Gastroenterology, Pt. B.D. Sharma PGIMS, Rohtak-124001, Haryana (India)

ABSTRACT

Background: Jaundice in pregnancy is an important medical disorder seen more often in developing countries than in developed ones. Viral hepatitis is the commonest cause of jaundice in pregnancy, however, the course of acute hepatitis is not affected by pregnancy, except for hepatitis E and disseminated herpes simplex infection in which maternal and fetal mortality are significantly increased.[1-3] Upto 3% of pregnancies are complicated by liver disorders.[4] Jaundice in pregnancy carries adverse fetomaternal outcome and accounts for almost 60% of perinatal and 14 % of maternal mortality.[5]

Aims and Objectives: To study the causative factors for jaundice in pregnancy and to evaluate maternal and perinatal outcomes in pregnancies complicated by jaundice.

Material and Methods: Prospective observational study conducted on all pregnant females who presented with jaundice (serum bilirubin >2mg%) to the Deptt. of Obstetrics and Gynaecology at Pt. BD Sharma PGIMS Rohtak over a period of one year.

Results: Mean age of pregnant women was 24.12±4.12 with a range of 19-35 years. Acute viral hepatitis and intrahepatic cholestasis of pregnancy (ICP) were found to be the most common causes i.e. 47.91% and 35.41% respectively. A total of 77.08% women delivered vaginally and 22.91% by caesarean section. Complications such as hepatic encephalopathy (8.33%), ICU stay (8.33%), thrombocytopenia (6.25%) and ventilatory support (6.25%) were observed. Postpartum haemorrhage and sepsis were found to be 4.16% each. Three patients expired during the course of the study. A total of 52.08% babies were term births and 41.66% were preterm births. A total of 8(16.66%) were IUDs, 22.91% were meconium staining and NICU admissions each. Normal birth weight was found in 39.58% babies and 54.16% were low birth weight babies.

Conclusion: In conformity with the literature, present study clearly demonstrates that the most common causes of jaundice complicating pregnancies appear to be acute viral hepatitis and ICP. These should be promptly diagnosed, investigated and appropriately management instituted as most of the adverse maternal and perinatal outcomes can be avoided.

INTRODUCTION

Jaundice in pregnancy is an important medical disorder seen more often in developing countries than in developed ones. Viral hepatitis is the commonest cause of jaundice in pregnancy, however, the course of acute hepatitis is not affected by pregnancy, except for hepatitis E and disseminated herpes simplex infection in which maternal and fetal mortality are significantly increased.[1-3] Upto 3% of pregnancies are complicated by liver disorders.[4] Jaundice in pregnancy carries adverse fetomaternal outcome and accounts for almost 60% of perinatal and 14 % of maternal mortality.[5] The complications of jaundice in pregnancy are largely due to the underlying causes of this condition. In view of the paucity of

studies on evaluation of maternal and perinatal outcome in pregnancies complicated by jaundice, the present study was designed to determine the maternal and perinatal outcome of jaundice in pregnancy.

MATERIAL AND METHODS

This prospective study was conducted on all pregnant females who presented with jaundice (serum bilirubin >2mg%) to the Deptt. of Obstetrics and Gynaecology at Pt. BD Sharma PGIMS Rohtak. All the subjects included in the study gave their written consent for being subjects in the study. A detailed history was taken and general, systemic and obstetric examination was carried out. They were subjected to routine laboratory investigations, liver function tests (S. Bilirubin, SGOT/PT, S. Alkaline Phosphatase), Viral markers (HbsAg for Hepatitis-B and Hepatitis-C) and coagulation profile. Hepatobiliary ultrasound was carried out to evaluate etiological factor responsible for jaundice.

Outcome

Maternal outcomes included mode of delivery, complications of pregnancy, antepartum/intrapartum/postpartum ICU admissions and maternal death. Fetal outcomes included preterm/term births, intrauterine deaths, low/normal birth weights, NICU admissions and perinatal deaths.

Statistical Analysis

At the end of the study, the data was collected and analysed by using Chi-square test. A p-value of <0.05 was considered as significant.

RESULTS

A total of 48 patients presented with serum bilirubin >2 mg% out of 10542 patients over a period of one year making the overall incidence of liver disorders in pregnancy to be 0.27%. Majority of women were in the age range of 21-25 years i.e. 25(52.08%) followed by <20 and 26-30 years age group i.e. 10 (20.83%) each. Mean age of the present study was 21.12±4.12 years with a range of 19-36 years. With regard to socio economic status of the patients, most of the women 23 (48%) belonged to lower socio economic class followed by middle class in 21 (43.5%). Only 4 (8.5%) women belonged to upper class. Most of the women were multigravida (33, 68.75%) and primigravida were 15 (31.25%) women as shown in Table I.

Table I: Demographic Profile (n=48)

Parameters	
Age range (years) Mean±SD Range	 24.12±4.12 19-36
Lower SE status	48 %
Parity Primigravida Multigravida	 31.25% 68.75%

Table II enlists the various etiological factors for jaundice in our study group. The most common etiology was observed to be acute viral hepatitis (47.91%) and ICP (35.41%).

Table II: Etiological factors of jaundice in pregnancy (n=48)

Etiology	Number of patients	Percentage (%)
Acute viral hepatitis	23	47.91
ICP	17	35.41
Eclampsia	1	2.08
Preeclampsia	4	8.33
HELLP	3	6.25
Total	48	

It was observed that the most common symptom was yellow discolouration of urine in 30 (62.5%) women followed by pain abdomen in 9 (18.75%) women whilst 8 (16.66%) women presented with nausea/vomiting. On examination, 44 (91.66%) women had icterus at the time of admission as the most common sign followed by edema in 17 (35.41%) women.

Seven women were HBsAg positive and 5 were found to be HCV positive. Mean values of all the liver function tests decreased significantly after one week as compared to mean values at the time of admission. Gall bladder wall edema was seen on sonography in majority of women and none of the patients were cirrhotic (Table III).

Table III: Investigations (n=48)

Examination	At the time of admission	After one week	Statistical significance
HBsAg +ve Anti HCV +ve	7(14.58%) 5 (10.41%)	- -	- -
S. bilirubin T D I	 6.45±4.81 4.08±3.70 2.36±1.92	 3.41±3.62 2.10±2.69 1.33±1.15	 <0.001 HS <0.001 HS <0.001 HS
SGOT	460.63±731.04	165.09±278.12	<0.01 S
SGPT	405.12±594.58	136.04±181.51	<0.001 HS
S. alk. Phos.	323.64±305.87	200±73.05	<0.001 HS
Sonography* Normal findings Gall bladder wall edema	 34 12		

NS = Not significant; HS = Highly significant, * 2 women sonography not done.

Mean POG at the time of admission was 32.65±6.86 weeks. Mean period of gestation at the time of delivery was 35.25±5.54 weeks and these women were managed conservatively in between. As evident in Table IV, labour was spontaneous in 33 women (68.75%). 13 women were induced (27.08%) out of which 10 women had ICP, 2 women had presented with HELLP syndrome and one had eclampsia. Majority of women delivered through vaginal route (72.91%) and only 10 (20.83%) underwent emergency caesarean section with fetal distress being the most common indication. Two women remained undelivered and one had missed abortion at 11 weeks gestation for which suction evacuation was done. Hepatic encephalopathy was the most common maternal complication. We observed three maternal deaths and cause of death was acute viral hepatitis with hepatic encephalopathy in all of them. Two maternal deaths were found to be in women with serum bilirubin levels in range of 5-10 mg% and one maternal death with serum bilirubin $\geq$15mg%. Two women had postpartum hemorrhage which was managed by balloon tamponade. None of them required surgical intervention. Mean blood transfusions were 1.14, 2.41 and 4 for PCV, FFP and PRP respectively (Table IV).

Table IV: Obstetric Outcome and Complications (N=48)

POG (weeks)	
Mean POG at the time of admission Mean POG at the time of delivery	 32.65±6.86 weeks 35.25±5.54 weeks
Labour Spontaneous Induced	 33 (68.75%) 13 (27.08%)
Mode of delivery Vaginal LSCS	 35 (72.91%) 10 (20.83%)
Complications Hepatic encephalopathy PPH ICU Stay Maternal Death	 4 (8.33%) 2 (4.16%) 4 (8.33%) 3 (6.24%)

A total of 25 (52.08%) babies were term and 20 (41.66%) were preterm. Eight (16.66%) patients had intrauterine deaths. Nineteen (39.58%) babies were normal birth weight and 26 (54.16%) were found to have low birth weight. Meconium staining was observed in 11 (22.91%) babies. Five (10.42%) babies suffered from birth asphyxia. With regard to NICU stay, 11 (22.91%) babies were admitted to NICU and all were discharged.

DISCUSSION

The overall incidence of liver disorders in pregnancy in our institution in the study period was 0.27% which was comparable with 0.4% incidence in the study by Acharya et al[6], 0.3% in Oladokun et al[7] study and 0.31% in the study by Mitta et al.[8]

Mean age of the present study was 21.12±4.12 years with a range of 19-36 years. In the study by Dsouza et al, the peak age of incidence was 21-25 years i.e. 52.9%.[9] Also in the study by Sharma et al, majority of the women belonged to 21-25 years age group i.e. 66.6%.[10] In the present study, most of the women 23 (48%) belonged to lower socio economic class followed by middle class 21 (43.5%). Only 4 (8.5%) women belonged to upper class which is comparable to the study by Dsouza et al[9] and Sharma et al.[10] The incidence is high in lower socioeconomic class owing to the poor sanitation and unhygienic conditions which lead to the increased spread of the disease. Most of the women in our study were multigravida (33, 68.75%) and primigravida were 15 (31.25%) women. Mitta et al studied that the maximum number of women in the study group were multigravida accounting for 61.9% and 38.1% were primigravida.[8]

In our study, mean period of gestation was 32.65±6.86 weeks. Oladokun et al observed that the mean gestation age at the time of admission was 30 weeks.[7] Mean period of gestation at the time of delivery was 35.25±5.54 weeks. . Acharya et al studied 30 pregnant women who suffered from jaundice in pregnancy over a 6-year period and observed that 15 (51%) women delivered at term and 14 (48%) women had a preterm delivery while 1 woman opted for MTP at 8 weeks period of gestation.[6] The higher incidence of preterm delivery in pregnancies complicated by jaundice is due to hyperpyrexia, increased cytokine release, disturbed hormonal status and debilitating effects of viremia of hepatitis.

In the present study, most common etiology was observed to be acute viral hepatitis followed by ICP i.e. 23(47.91%) and 17(35.41%) respectively. Sharma et al studied that the most important cause of jaundice in their study was acute viral hepatitis (46.7%) followed by preeclampsia (33.3%) and ICP (6.7%).[10]

The most common symptom was yellow discolouration of urine in 30 (62.5%) women in our study followed by pain abdomen in 9 (18.75%) women and nausea/vomiting in 8 (16.66%) women. Fourty four women had icterus at the time of admission. In the study by Krishnamoorthy et al, 86.27% women had high coloured urine as the presenting symptom followed by nausea and vomiting which was present in 70.6% of the women. They also found that icterus was present in all the women.[11]

In the study by Nath et al, the maternal deaths with serum bilirubin levels in the range of 5-10 mg%, 10-14 mg% and $\geq$ 15mg% were 1 (2.85%), 2 (9.54%) and 7 (46.6%) respectively. On analyzing the relationship between serum ALT levels and maternal deaths, they found that 8 (11.42%) women expired in the group with serum ALT levels between 36-999 IU/ml and 2 (13.3%) women expired with $\geq$1000 serum ALT levels. It can be concluded that maternal mortality is directly related to the levels of serum bilirubin and serum ALT levels.[12]

As studied by Mitta et al, 27 (69.23%) women delivered vaginally whereas 12 (30.76%) women underwent cesarean sections out of 42 women[8], which is comparable to the present study.

Nath et al concluded that hepatic encephalopathy was the most common complication (17%) followed by DIC (14%), ICU stay (14%), ventilatory support (11%), thrombocytopenia (9%), sepsis (7%), wound infections (6%) and renal failure (5%). Ten (10%) women expired in their study.[12] Thus, our study was comparable to the study by Nath et al and hepatic encephalopathy was attributed as the most common cause of maternal mortality in pregnancies complicated by jaundice.

Krishnamoorthy et al studied that out of 51 women, 51.04% were term and 48.8% were preterm births. Intrauterine deaths and still births were seen in 26.64% and 8.8% pregnancies respectively. It was observed that 46.67% were normal birth weight and 53.33% were low birth weight babies. Sixteen (35.5%) babies died in the perinatal period.[11] So it can be concluded that jaundice complicating pregnancy is associated with increased incidence of preterm births, low birth weight babies, meconium staining, NICU admissions, intrauterine deaths and perinatal morbidity and mortality.

Table V summarizes and compares the various studies in literature with the present study on jaundice complicating pregnancies.

Table V: Review of Various Studies

Parameters	Present study	Mitta et al[42]	Krishnamoorthy et al[45]	Nath et al[40]
Peak age of incidence (years)	21-25 (52.08%)	20-29 (73.8%)	20-29 (74%)	25-29 (39%)
Parity Primagravida Multigravida	 31.25% 68.7%	 38.1% 61.9%	 54.9% 45.10%	 38% 62%
Mean POG at the time of admission (weeks)	32.65	83.33% in 3rd trimester	80.39% in 3rd trimester	-
Most common etiology	Acute viral hepatitis (47.91%)	Acute viral hepatitis (52.38%)	Acute viral hepatitis (50.98%)	Acute viral hepatitis (49%)
Most common clinical presentation at the time of admission	Yellow discoloration of urine (62.5%)	Yellow discoloration of urine and nausea/ vomiting (59.52% each)	Yellow discoloration of urine (86.27%)	Nausea / vomiting (38%)
Mean POG at the time of delivery (weeks)	35.25	62.5% at term and 35% preterm	45.09% at term and 43.13% preterm	32.1% at term and 67.8% preterm
Mode of delivery Vaginal Cesarean section	 72.9% 20.83%	 69.23% 30.76%	 -	 74.2% 25.7%
Most common maternal complication	Hepatic encephalopathy and ICU stay (8.33% each)	DIC (11.9%)	Atonic postpartum haemorrhage (9.8%)	Hepatic encephalopathy (17%)
Fetal outcomes Term Preterm Lowbirth weight NICU admission	 52.08% 41.66% 54.16% 22.91%	 62.5% 35% 85.72% -	 45.09% 43.13% 53.33% -	 32.1% 67.8% 36% 66.6%

CONCLUSION

In conformity with the literature, present study clearly demonstrates that the most common causes of jaundice complicating pregnancies appear to be acute viral hepatitis and ICP. These should be promptly diagnosed, investigated and appropriate management instituted as most of the adverse maternal and perinatal outcomes can be avoided.

REFERENCES

[1]. Whitfield CR. Miscellaneous disorders complicating pregnancy. In: Dewhurst's textbook of Obstetrics and Gynaecology for Postgraduates. 5th Ed. (Whitfield CR, ed.) Blackwell scientific publishers. Oxford. 1995. p.288-92.
[2]. Williamson C, Nelson PC. Liver disease in pregnancy. Br J Hospital Med 1997;58:213-6.
[3]. Borhanmanesh F, Haghhighi P, Hekmat K. Viral hepatitis during pregnancy: Severity and effect on gestation. Gastroenterology 1973;64:304-12.
[4]. Pang WW, Lei CH, Chang DP. Acute jaundice in pregnancy: acute fatty liver or acute viral hepatitis? Acta Anaesthesiol Sin 1999;37:167-70.
[5]. Kumar A, Beniwal M, Kar P. Hepatitis E in pregnancy. Int J Gynaecol Obstet 2004;85:240-4.
[6]. Acharya N, Acharya S, Shukla S, Athvale R, Datta S. Study of Jaundice in Pregnancy. Global J Med Res Gynecol Obstet 2013;13:2.
[7]. Oladokun A, Otegbayo JA, Adeniyi AA. Maternal and fetal outcomes of jaundice in pregnancy at the University College Hospital, Ibadan. Niger J Clin Pract 2009;12:277-80.
[8]. Mitta P, Rao SV. Fetomaternal outcome in jaundice complicating pregnancy. J Dent Med Sci 2016;15:72-6.

[9]. Dsouza AS, Gupta G, Sandeep SG, Katumalla FS, Goyal S. Maternal and fetal outcome in liver diseases of pregnancy – a tertiary hospital experience. Int J Sci Res Publ 2015;5:1-4.
[10]. Sharma S, Aherwar R, Jawade S. Maternal and fetal outcome in jaundice complicating pregnancy: a prospective study. Int J Reprod Contracep Obstet Gynecol 2016;5:1084-8.
[11]. Krishnamoorthy J, Murugesan A. Jaundice during pregnancy: maternal and fetal outcome. Int J Reprod Contracep Obstet Gynecol 2016;5:2541-5.
[12]. Nath J, Bajpayi G, Sharma R. A clinical study on jaundice in pregnancy with special emphasis on fetomaternal outcome. IOSR-JDMS 2015;14:116-9.