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Research Article

## Study of feto-maternal outcome in patients of jaundice in third trimester of pregnancy

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### ABSTRACT

**Background:** Jaundice in pregnancy is an important medical disorder, more commonly seen in developing countries than developed ones. It comprises of a formidable list of complications that may adversely affect the pregnant woman and her fetus. Objective of current study was to study causes and feto-maternal outcome in pregnancies with jaundice in 3<sup>rd</sup> trimester.

**Methods:** This was a retrospective study of 49 patients admitted in department of Obstetrics & Gynaecology at a tertiary care hospital with jaundice in 3<sup>rd</sup> trimester of pregnancy during the period from September 2008 to September 2010.

**Results:** Out of 9972 deliveries, 49 patients were admitted with jaundice in 3<sup>rd</sup> trimester of pregnancy. Out of them 91.1% patients delivered. Vaginal delivery occurred in 82.2% and Cesarean section done in 17.7%. Preterm delivery occurred in 68.8%, low birth weight (LBW) was found in 82.2%, perinatal mortality occurred in 34.6% and maternal mortality occurred in 16.3% of patients.

**Conclusions:** Jaundice in 3<sup>rd</sup> trimester of pregnancy leads to preterm delivery, fetal distress, intra uterine fetal death (IUFD) and high perinatal & maternal morbidity and mortality. Early diagnosis & aggressive management at tertiary care center help in reducing maternal & perinatal morbidity and mortality.

**Keywords:** Jaundice in pregnancy, Maternal morbidity and mortality

### INTRODUCTION

Jaundice in pregnancy is an important medical disorder, more commonly seen in developing countries than developed one. 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, gall stones, certain drugs or pregnancy in patients of chronic liver diseases.<sup>1</sup> Jaundice in pregnancy carries a grave prognosis for both fetus and mother. It is responsible for about 60% of perinatal mortality and 14% of maternal mortality.<sup>2</sup>

The present study analysed the causes and feto-maternal

outcome in pregnancies which were affected with jaundice in 3<sup>rd</sup> trimester.

### METHODS

All pregnant women with jaundice in third trimester of pregnancy who were admitted in the department of Obstetrics and Gynecology at a tertiary care hospital from September 2008 to September 2010 were studied retrospectively. After the admission necessary investigations were done and patients were treated as per diagnosis and with help of other medical specialties as and when required. The data was collected from the indoor case papers as per proforma and statistical analysis was done.

## RESULTS

During the study period 9972 deliveries occurred, out of these 49 patients were admitted with jaundice in 3<sup>rd</sup> trimester of pregnancy.

**Table 1: Demographic profile & types of admissions.**

Age	Number (%)
<20 years	2(4.0%)
20-24 years	25(51.0%)
25-30 years	19(38.7%)
>30 years	3(6.1%)
Socio-economic status	Number (%)
Low	46(93.8%)
Medium	3(6.1%)
High	0(%)
Residential status	Number (%)
Urban	36(73.4%)
Rural	13(26.5%)
Education status	Number (%)
Illiterate	13(26.5%)
Primary	17(34.6%)
Secondary	12(24.4%)
Higher secondary	7(14.2%)
Graduate	0
Post graduate	0
Emergency or Registered patients	Number (%)
Emergency	32(65.3%)
Registered	17(34.6%)

Table 1 shows that out of all patients, 51% of patients were in age group of 20 to 24 years of age, 93.8% patients were from lower socioeconomic status and

73.4% of patients were from urban areas. Among these patients 59% patients had either primary or secondary education and 26.5% patients were illiterate. Emergency admissions were 65.3%.

Table 2 shows that, 30.5% patients had anemia, total white cell count was raised in 36.7%, thrombocytopenia was found in 16.3% of patients. Test of coagulation were altered in about 30.6% of patients and 36.7% were having infected with Hepatitis E Virus (HEV).

Table 3 shows that, 44.8% patients had Infective hepatitis, out of them 36.7% had HEV infection, 6.1% had HbsAg and 2.0% had HAV infection. Cholestatic jaundice was found in 24.4%, pre-eclampsia and HELLP syndrome was found in 18.3% of patients.

Table 4 shows that, out of 91.8% patients who delivered 82.2% were delivered vaginally and 17.7% were delivered by LSCS, while 8.1% patients expired during antenatal period.

Table 5 shows that 91.8% of patients delivered, out of which 68.8% had preterm delivery and 31.1% of patients delivered at term. Live births were 91.1% and still births were 8.8%.

Table 6 shows that, DIC and thrombocytopenia were the most common complication in 26.5% of patients, other complications were encephalopathy in 18.3%, renal failure in 10.2%, PPH in 8.1%, shock in 4.0% and wound complication in 8.1% of patients. Maternal mortality occurred in 16.3%. Equal number of patients died in antenatal and postnatal period.

**Table 2: Results of Investigation.**

Investigation	Number (%)	Investigation	Number (%)		
Hemoglobin	<8gm/dl	3(6.1%)	Serum Bilirubin	<5mg/dl	12(24.4%)
	8-10gm/dl	12(24.4%)		5-10mg/dl	18(36.7%)
	>10gm/dl	34(69.3%)		10-15mg/dl	15(30.6%)
Total WBC count	Raised	18(36.7%)	15-20mg/dl	4(8.1%)	
	Normal	31(63.2%)	<100U/L	12(24.4%)	
Platelet count	<1lac/cu mm	8(16.3%)	100-1000U/L	33(67.3%)	
	>1lac/cu mm	41(83.6%)	>1000U/L	4(8.1%)	
Bleeding time	Prolonged	3(6.1%)	Serum alkaline phosphatase	Raised	23(46.9%)
	Normal	46(93.8%)		Normal	26(53.0%)
Clotting time	Prolonged	3(6.1%)	Viral markers		Number (%)
	Normal	46(93.8%)	Hepatitis B positive	3(6.1%)	
Prothrombine time	Prolonged	15(30.6%)	Hepatitis A positive	1(2.0%)	
	Normal	34(69.3%)	Hepatitis E positive	18(36.7%)	
Activated partial thromboplastine time	Prolonged	15(30.6%)	Hepatitis C positive	0	
	Normal	34(69.3%)			

**Table 3: Causes of jaundice in 3<sup>rd</sup> trimester of pregnancy.**

Cause	Number	% of patients	
Infective Hepatitis	A	1	2.0
	B	3	6.1
	C	0	0
	E	18	36.7
Cholestatic jaundice of pregnancy	11	22.4	
Pre-eclampsia+HELLP Syndrome	9	18.3	
Others	Hemolytic jaundice	5	10.2
	Septicemia	1	2.0
	gall stone	1	2.0

**Table 4: Outcome of pregnancy.**

Outcome	Number	% of patients	
Delivered 45(91.8%)	Vaginal delivery	37	82.2
	LSCS	8	17.1
Undelivered	Expired	4	8.1

**Table 5: Outcome of baby.**

Outcome	Number	% of patients		
Preterm Delivery 31(68.8%)	Live Birth	28	90.3	
	Still Birth	3	9.6	
	Meconium	Yes	10	32.2
		No	21	67.7
	Weight	>2.5kg	4	12.9
		<2.5kg	27	87.0
	Admission in NICU	17	54.8	
Fullterm Delivery 14(31.1%)	Live Birth	13	92.8	
	Still Birth	1	7.1	
	Meconium	Yes	7	50
		No	7	50
	Weight	>2.5kg	4	28.5
		<2.5kg	10	71.4
Admission in NICU	4	28.5		
Undelivered expired	4	8.1		

**DISCUSSION**

During the study period total 9972 deliveries occurred, out of these 49 patients were admitted with jaundice in 3<sup>rd</sup> trimester of pregnancy. The proportion of jaundice in our study was 0.4%. Studies conducted by Tripti et al,<sup>2</sup> Oladokun A et al<sup>3</sup> and Parveen T et al<sup>4</sup> have reported incidence of jaundice 0.5%, 0.3% and 1.3% respectively.

In present study, 65.3% of patients were emergency admission. Study conducted by Tripti et al had 80.5% of emergency admissions.<sup>2</sup>

**Table 6: Maternal morbidity and mortality\*.**

Complication	Number	% of patients	
Morbidity	DIC and Thrombocytopenia	13	26.5
	Encephalopathy	9	18.3
	Renal failure	5	10.2
	Post partum haemorrhage	4	8.1
	Wound complication	4	8.1
	Shock	2	4.0
	Mortality	Antenatal	4
post natal		4	8.1

\*More than one complication was present in each patient.

In present study, infective hepatitis was present in 44.8% of patients. Studies conducted by Oladokun A et al<sup>3</sup> and Yeul et al<sup>5</sup> have reported 58.3% and 61.5% of infective hepatitis respectively. In present study, 36.7% patients had HEV infection. Safary et al,<sup>6</sup> Yeul et al<sup>5</sup> and Kumar et al<sup>7</sup> have reported 35-50% incidence of HEV.

In present study, 91.8% patient delivered. Out of these 82.2% were delivered vaginally while 17.7% were delivered by LSCS. Tripti et al<sup>2</sup> have reported vaginal delivery in 58% and cesarean section was done in 28%.

In present study, out of 91.8% of patients who delivered, 68.8% had preterm delivery and 31.1% of patients delivered at term. Study by Oladokun A et al<sup>3</sup> and Parveen T et al<sup>4</sup> have reported 39.6% and 71.1% of preterm deliveries respectively. In our study, liquor was meconium stained in 37.7%. In a study by Ray et al<sup>8</sup> liquor was meconium stained in 45%. In present study, LBW was found in 82.2% of babies. Parveen T et al<sup>4</sup> have reported 55.8% of LBW babies. In present study, IUFD was present in 8.8%. Oladokun A et al<sup>3</sup> have reported 8.3% of IUFD. In present study, perinatal mortality was 34.6%. Tripti et al<sup>2</sup> and Rathi et al<sup>9</sup> have reported perinatal mortality of 61.7% and 35.4% respectively. Good NICU helps in reduction of perinatal mortality.

In present study, DIC and thrombocytopenia were the most common complications found in 26.5% of patients. Encephalopathy, renal failure, PPH and shock found in 18.3%, 10.2%, 8.1% and 4.0% respectively. Tripti et al<sup>2</sup> have reported DIC and thrombocytopenia, encephalopathy, renal failure, PPH and shock in 21%, 26%, 19%, 4.8% and 4.8% respectively. Parveen T et al<sup>4</sup> have reported encephalopathy and PPH in 10.8% and 15.3% of patients respectively.

Blood components were given in 59.1% of patients. Packed cell volume, fresh frozen plasma, platelet reached component and cryoprecipitate were given in 28.5%, 48.9%, 18.3% and 8.1% of the patients respectively.

Availability of blood components has helped in reducing maternal mortality and morbidity in patients of pregnancy with jaundice.

In present study, out of 8 maternal deaths, 8.1% of patients expired undelivered and 8.1% expired after delivery. In a study by Tripti et al, 4.8% of patients expired undelivered and 19.5% patients expired after delivery.<sup>2</sup>

In present study, when initial serum bilirubin was <10 mg%, 10-15 mg% and 15-20 mg%, maternal mortality was 9.6%, 21.4% and 50% respectively. Tripti et al have reported 8.3%, 22.2% and 71.4% of maternal mortality with similar range of bilirubin concentrations.<sup>2</sup> Higher bilirubin levels are associated with high maternal mortality.

In present study, maternal mortality occurred in 16.3% of patients. Out of these 7 patients had DIC, 5 patients had hepatic encephalopathy, 7 patients ARF, 2 patients had ARDS and shock and 1 patient had pulmonary embolism. More than one complication was found in each patient. Trivedi et al,<sup>10</sup> Tripti et al<sup>2</sup> and Parveen T et al<sup>4</sup> have reported 29.3%, 24.3% and 8.6% of maternal mortality respectively. Early diagnosis and aggressive management of pregnancy with jaundice at tertiary care centre and good NICU helps in reducing maternal and perinatal mortality and morbidity.

## CONCLUSIONS

Jaundice in third trimester of pregnancy is a bad combination. There was a higher risk of preterm delivery, fetal distress, IUFD and meconium aspiration leading to high perinatal mortality and morbidity. Infective Hepatitis due to HEV had a grave prognosis with high maternal mortality. Higher bilirubin levels were associated with high maternal mortality. Public health education help in creating awareness regarding different mode of transmission of hepatitis and routine antenatal screening for hepatitis B virus is advocated, thereby reducing the incidence of jaundice in pregnancy due to hepatitis. Availability of blood components has greatly

revolutionized the management of jaundice. Early diagnosis and aggressive management of pregnancy with jaundice at tertiary care centre and good NICU helps in reducing maternal and perinatal mortality and morbidity.

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