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Fetomaternal Outcome In Jaundice Complicating Pregnancy

Pranathi Mitta[1], Sujaya.V.Rao[2]
[1]*Resident ,Department of OBG ,Father Muller Medical College,Mangalore.*
[2]*Professor,Department of OBG ,Father Muller Medical College,Mangalore.*

Abstract:
Background: *Liver disorders complicate 3 %of all pregnancies,yet it takes a major toll on health of both mother and fetus especially in developing countries like India.It is responsible for about 60%of perinatal mortality and about 14%of maternal mortality.The aim of this study was to findout the effect of jaundice on maternal health in pregnancy and assess the complications of jaundice in pregnancy .To evaluate the outcome in labour and to study the maternal mortality, and to acknowledge the effect of jaundice on fetus and perinatal mortality rates.*
Method: *Pregnant women with jaundice during pregnancy ,attending the Father Muller Medical College Hospital,Mangalore between june2014-september2016 were included in the study.*
Results: *42 patients had jaundice during pregnancy.The incidence of jaundice was 0.31%.73.8% of patients was between 20-29 years of age.Maximum number of cases were multigravida.The most common cause of jaundice was viral hepatitis.Maternal mortality was 4.76%.The common maternal complications were DIC 11.9%,renal failure 7.14%,abruption,atonic PPH were 4.76%.Perinatal mortality was 30.76%.*
Conclusion: *Jaundice in pregnancy has adverse fetomaternal outcome.Improvement in health awareness,education and regular antenatal checkups,early referrals result in early diagnosis and treatment of jaundice during pregnancy thus reducing maternal and fetal mortality and morbidity.*

I. Introduction

The word "jaundice "is derived from the french word "jaune"meaningyellow.By definition jaundice is yellowish discolourisation of skin and sclera because of increase in serum bilirubin.[1]

The hemodynamic,hormonal and immunological changes unique to pregnancy not only alter the course of both acute and chronic liverdisease in pregnancy,but they may inturn affect the outcome of pregnancy.The hepatic functions during pregnancy are affected by increase in serum oestrogen and progesterone levels.Physical findings such as palmer erythema,spider angiomas which may suggest liver disease ,may be found normally during pregnancy.[2]

Liver disease complicating pregnancy is divided into 3 general categories.

First category includes those specifically related to the pregnancy such as acute fatty liver of pregnancy,hyperemesis gravidarum,intra hepatic cholestasis,HELLP syndrome.

Second category includes acute hepatic disorders that are coincidental to pregnancy such as acute viral hepatitis ,gall stones.

Third category includes chronic liver diseases.Worldwide ,most common cause of jaundice is viral hepatitis.[3]

II. Methods

The study was conducted in Father Muller Medical College,Mangalore.From June 2014 to September 2016.This prospective study of maternal and fetal outcome included 42 pregnant women with jaundice admitted at our hospital during study.Elaborate history and thorough general,systemic and obstetric examination were carried out.Liver function tests like total,direct,indirect serum bilirubin,total protein,albumin and globulin,serum transaminases,serum alkaline phosphatase,clotting time,bleeding time and ultasonogram,complete hemogram,coagulation profile,viral markers study such as HBsag,Anti HAV IgM, ANTI HCVab, Anti HEV IgM antibodies were done depending on clinical situation.Dark field examination and IgM(ELISA) antibodies were done for leptospirosis.

Maternal outcomes was noted in terms of mode of termination of pregnancy,maternal morbidity and mortality.Fetal outcome was assessed by perinatal morbidity and mortality.

III. Results

Total number of antenatal admissions during this period was 13,178.Total number of patients with jaundice was 42.The incidence of jaundice complicating pregnancy during this period in the hospital was 0.31%.The patients in the study group were in the age range from 18 years to 36 years .Nearly 73.8%of jaundiced patients were between 20 and 30 years.The incidence of jaundice was more common in low socio

economic groups.About 85.71%% of cases belonged to class IV and V.Maximum numbers of cases were multigravida which accounted for61.90% .Out of 42 cases , 35cases(83.33%) presented with jaundice during third trimester.

1.Demographic Profile

AGE GROUP	NO OF CASES	PERCENTAGE
<20 YEARS	2	4.76%
21-24 YEARS	15	35.71%
25-29 YEARS	16	38.09%
>30 YEARS	9	21.42%
SOCIO ECONOMIC CLASS		
CLASS 3	6	14.2%
CLASS 4	12	28.57%
CLASS 5	24	57.14%
GRAVIDITY		
PRIMIGRAVIDA	16	38.095%
MULTIGRAVIDA	26	61.90%
PERIOD OF GESTATION		
FIRST TRIMESTER	1	2.38%
SECOND TRIMESTER	6	14.2%
THIRD TRIMESTER	35	83.33%

2 Patients had history of contact with jaundice.3 patients had history of blood transfusion among which one was HBsAg positive.5% of patients were utilising safe water for drinking purpose and 95% were ignorant about safe water.On analysing the presenting symptoms59.52 % had nausea,vomiting and 59.52%had yellowish discolourisation of urine.Other predominant symptoms were fever(35.71%),itching(21.42%),high blood pressure recordings(19.04%) and pain abdomen(11.9%).Jaundice was present in100 %of cases.Other signs were ascitis(35.71%),edema(35.71%),scratch marks(23.80%),abdominal tenderness(21.42%) and hepatomegaly(23.80%).

2.Symptoms

Symptoms	No Of Cases	Percentage
Nausea,Vomiting	25	59.52%
Loss Of Appetite	1	2.38%
High Bp Recordings	8	19.04%
Petachie	0	0
Yellowish Discolourisation Of Urine	25	59.52%
Hematemesis	0	0
Pain Abdomen	5	11.9%
Fever	15	35.71%
Itching	9	21.42%
Clay Coloured Stools	3	7.14%
Abdominal Distension	2	4.76%
Vaginal Bleeding	2	4.76%
Shock	1	2.38%

3.Signs

Signs	No Of Cases	Percentage
Icterus	42	100%
Hepatomegaly	10	23.80%
Spleenomegaly	3	7.14%
Ascitis	15	35.71%
Scratch Marks	10	23.80%
Abdominal Tenderness	9	21.42%
Edema	15	35.71%

82%of patients showed positive for bile pigments and bile salts in urine.19.6%patients were positive for protein.The level of serum bilirubin varied widely between 2.4 to 20.05 mg/dl.7.14 % of patients had high serum bilirubin more than 16 mg/dl.The serum trasaminase level was below 100 in 56% of patients, 7.14% of patients had level more than 500 IU/L.Serum alkaline phosphatase was more than 200 U/L in 74% of cases.

Serum Bilirubin(Mg/Dl)	No Of Cases	Percentage
<5	21	50%
6-10	15	35.71%
11-15	3	7.14%
16-20	3	7.14%

Sgot(Iu/L)		
<200	37	88.09%
200-500	2	4.76%
>500	3	7.14%
Sgpt(Iu/L)		
<200	37	88.09%
200-500	2	4.76%
>500	3	7.14%
Alkaline Phosphatase(U/L)		
<400	36	85.71%
400-800	3	7.14%
>800	5	11.9%

Coagulation parameters were derrangedin 7 patients.Out of which 5 patients went into DIC.

Coagulation Parameter	No Of Cases	Percentage
Pt Normal	35	83.33%
Pt Raised	7	16.66%
Aptt Normal	35	83.33%
Aptt Raised	7	16.66%
Fdp Negative	37	88.09%
Fdp Positive	5	11.9%
D Dimer Negative	38	90.4%
D Dimer Positive	4	9.5%

9 patients received blood transfusion of various components.one patient with HELLP syndrome and DIC received 8 packed cells,12 FFP and 12 platelets.

Blood Component	No Of Cases	Percentage
Given	9	21.42%
Not Given	33	78.57%

Viral hepatitis was the commonest etiology in 52.38 % of cases.Out of this ,hepatitis E was detected in 1 case,hepatitis A in 4 cases,hepatitis B in17 cases.HELLP syndrome was the next common etiology in 21.42% of cases.Acute fatty liver of pregnancy and chronic liver disease were the cause in 2.38%and 4.76% respectively. One case of chronic liver disease was due to portal vein thrombosis and cirrhosis, the other due to alcoholic liver disease.

Diagnosis	No Of Cases	Percentage
Viral Hepatitis	22	52.38%
Hellp	9	21.42%
Intra Hepatic Cholestasis Of Pregnancy	6	14.2%
Acute Fatty Liver Of Pregnancy	1	2.38%
Chronic Liver Disease	2	4.76%
Leptospirosis	2	4.76%
Hyperemesis Gravidarum	0	0
Unknown	0	0

Out of 42 patients , 1 patient in 2nd trimester and 1 patient in 3 rd trimester got discharged after treatment.1 patient in 1st trimester who was infected with leptospirosis had incomplete abortion at 8 weeks.61.5%delivered spontaneously .12 patients underwent LSCS,25 patients had term delivery and 14 patients had preterm delivery.

Mode Of Delivery	No Of Cases	Percentage
Spontaneous	24	61.5%
Instrumental	3	7.69%
Lscs	12	30.76%

Pregnancy Outcome	No Of Cases	Percentage
Abortion	1	2.5%
Preterm Delivery	14	35%
Term Delivery	25	62.5%

17 patients developed complications .In 5 patients DIC was seen.Renal failure in 3 patients and Atonic PPH in 2 patients.

Complications	No Of Cases	Percentage

Dic	5	11.9%
Abruption	2	4.76%
Atonic Pph	2	4.76%
Hepatic Encephalopathy	0	0
Renal Failure	3	7.14%
Oesophageal Varices	1	2.38%
Eclampsia	1	2.38%
Sepsis	1	2.38%
Death	2	4.76%

Maternal mortality was 4.76% due tojaundice.Among 2 deaths one patient died due to leptospirosis infection and one died due to HELLP syndrome and DIC. Two cases serum bilirubin was around 11 mg/dl.
Among 39 births,14 were preterm and 25 were term.Poor fetal outcome was seen with HELLP syndrome(31%),hepatitis B(25%), and intrahepatic cholestasis(12.5%).

Outcome	No Of Cases	Percentage
Term Live Babies	24	61.5%
Term Iud Babies	1	2.56%
Preterm Live Babies	7	17.94%
Preterm Iud	7	17.94%
Early Neonatal Death	4	10.2%
Perinatal Mortality	12	30.76%

12 Babies were below 2.5 kg and among them there was 85.71 % mortality.

Baby Weight(Live)	No Of Cases	Neonatal Deaths(Early+Late)	Percentage Of Neonatal Deaths
<1.5	2	2	28.57%
1.5 -2.5	10	4	57.14%
2.5-3.5	14	1	14.28%
>3.5	5	0	0

IV. Discussion

Total antenatal admissions during the study period were 13,178 of which 42 patients had jaundice and the incidence is 0.31%.About 85.71%patients belonged to lower socio economic class.Begum N etal studied about the seroprevalence of subclinical HEV infection in pregnant women and reported that exposure to hepatitis E was more in lower socio economic class.[4]

The maximum incidence of jaundice was in 3rd trimester and the complications were also high during that period.Harshad etal ,Shukla etal, Krishnamurthy et al and other studies have stated the maximum incidence of jaundice was in III trimester and morbidity and mortality were also higher during III trimester.[5,6]

In the present study ,high level of S.bilirubin,SGPT and SGOT levels more than 500 IU/ml were associated with viral hepatitis.Harshad et al also reported that marked elevation of bilirubin and transaminases (10 fold)occured in viral hepatitis ,where as patients with pregnancyasssociated liver disease like HELLP,Intra hepatic cholestasis of pregnancy and hyperemesis had only 2-3 fold.[5]

Viral hepatitis was the cause in 52.38% cases comparable to the study by Shukla et al who reported 57% and Harshad et al reported 47% cases of viral hepatitis.21.42% of cases had HELLP syndrome in present study .[5,6]Rathi U et al reported 52.3% cases with liver dysfunction due to preclampsia and HELLP.2 cases had chronic liver disease .Among them 1 had portal vein thrombosis and portal hypertension.[7]Agarwal et al studied 50 pregnant patients with NCPH and reported that in 56% patients, NCPH was detected first during pregnancy.[8]In India it is commonly due to non cirrhotic portal fibrosis and extra hepatic portal vein obstruction.But in western countries portal hypertension is mostly due to cirrhosis.Intrahepatic cholestasis of pregnancy was diagnosed in 6 patients ,one had history of jaundice in her mother during antenatal period.Leptospirosis was diagnosed in 2 cases by MSAT.Shalini et al reported a case of leptospirosis with jaundice,coagulopathy and intra uterine death.[9]

In the present study 4.76% patients died.35.71% patients developed complications and 59.52% had uneventful recovery.11.9%had DIC,7.14%had renal failure.Abruption,atonic PPH developed in 4.76%.Oesophageal varices,eclampsia,sepsis developed in 2.38%.Jain S et al reported 52 patients with fulminant hepatic failure and concluded that renal dysfunction was the indicator of poor prognosis in patients with fulminant hepatic failure.[10]Rathi U et al reported 3 cases of AFLP and among them 2 cases died of DIC AND multiorgan failure.[7]Third patient died of HELLP syndrome,had severe hypertension,proteinuria,ascitis delivered a dead baby,died of DIC and hepatorenalfailure.Rathi U etal reported 25% mortality due to preclampsia associated liver dysfunction.The fourth patient was a case of non cirrhotic portal hypertension with grade III esophageal varices.Westbrook et al reported one death in pregnancy due to variceal bleeding.[11]

Mortality due to viral hepatitis was not seen in the present study .Study by Jayanthi et al ,observed that mortality rate of hepatitis E infection in southern India ws very low 3-4% compared to high mortality 30-100% seen in studies from Northern India[12].Study by Harshad et al ,reported that mortality was 41% in pregnancy associated liver disease and 7.5% in viral hepatitis and concluded mortality due to hepatitis E was low.[5]

Preterm deliveries were 35.88%(17.94% live birth and 17.94%intra uterine deaths.The higher incidence of preterm delivery was supported by Kumar et al 66.6% and Harshad et al 32% is due to high fever,increased cytokine release,disturbed hormonal status and debilitating effects of viremia of hepatitis.[13,5]The perinatal mortality in present study was 30.76%comparable to Rathi U et al reported 35.4%and Kumar et al reported 26.5%[7,13].Among 7 neonatal deaths HELLP syndrome constitutes 34%,intrahepatic cholestasis was 12.5%.According to Williamson et al the poor fetal outcome in intrahepatic cholestasis of pregnancy was due to the toxic bileacid level in the fetus causing fetal arrhythmia.[14]Westbrook et al reported 26% of fetal loss with chronic liver disease.[11]

12 babies were below 2.5 kg in present study and among them there was 85.71% mortality.Shukla et al reported 30.8% mortality in low birth weightbabies.[6]

V. Conclusion

Clinical jaundice is found as a complication in 1:1000 pregnancies.Viral hepatitis is the most common cause of jaundice in pregnancy .General public awareness about the various routes of transmission of the differenct types of infective hepatitis ,improving sanitary conditions and habits,imparting health education and knowledge of preventive measures ,routine and regular antenatal checkups and viral markers as a part of routine antenatal screening can help in reducing burden of jaundice in pregnancy.

Jaundice in pregnany should be managed as a team with colloboration of obstetrics,internalmedicine,gastroenterology,anaesthesia and critical care so that early diagnosis and aggressive management can prevent and reduce fetomaternal morbidity and mortality.

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