Original Research Article

A prospective study of fetomaternal outcome in patients of pregnancy with jaundice in tertiary care centre

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ABSTRACT

Background: The objective of the study was to study the incidence of jaundice, biochemical alterations, Fetomaternal outcome and various liver pathologies of pregnant patients with jaundice.
Methods: This was a prospective observational study conducted in Dr S N Medical College Jodhpur, Rajasthan, India from June 2014 to February 2016. Total fifty pregnant patients with clinical jaundice and prodromal symptoms of hepatitis were included in study.
Results: Out of 40,398 deliveries in our hospital, 50 cases of jaundice were identified giving an incidence of 1 in 808 (0.12%). Most common cause of jaundice in pregnancy in our set up was viral hepatitis i.e. 13 cases (26%) were HEV+ and 1 case (2%) came out to be HAV+. Serum LDH levels were raised in 36% of patients. Maximum no. of patients had their serum AST/ALT levels in the range of 100-1000 IU/ml (54%). Out of 52 births (2 twins) 34 were live births (65.38%) and rest were either SB or IUFDs. Most common causes of mortality in patients were Septicemia, MODS, DIC (25%) followed by HELLP syndrome and HEV+ viral hepatitis equally (16.67%). Maximum no. of patients with jaundice suffered from postpartum haemorrage and septicemia (60%).
Conclusions: Most common cause of jaundice in pregnancy in our study was viral hepatitis. Public awareness about the various routs of transmission of different types of infective hepatitis, improving sanitary conditions and habits, health education of preventive measures can help in reducing the burden of jaundice in pregnancy.

Keywords: Fetomaternal outcome, Jaundice, Mortality, Pregnancy

INTRODUCTION

Jaundice in pregnancy is a devastating situation which alters the smooth course of pregnancy to the level of moribund state for mother and perinatal mortality as well. Jaundice complicates 3.5% of pregnancies worldwide and its incidence in India is 0.4-0.9/1000 pregnant women.[1,2]

Viral Hepatitis is the most common form of liver disease worldwide and it frequently affects women of child bearing age.[3]Jaundice in pregnancy is classified into three categories. First includes diseases coincidental to pregnancy such as acute viral hepatitis. Second category includes diseases unique to pregnancy and caused by it which are hyperemesis gravidarum, cholastasis of pregnancy and preeclampsia. Third category includes pregnancy associated with pre existing liver disease like chronic active hepatitis and wilson's disease.[4]

Physiological alterations in normal pregnancy lead to mild cholestatic state. Clinical features of jaundice like nausea, vomiting, pain abdomen, mild pruritis, palmar erythema, and vascular nevi are seen normally in

pregnancy. These changes not only alter the course of both acute and chronic liver disease in pregnancy, but may also affect the fetomaternal outcome.[5-7] Hence the present study was conducted to analyze the etiological factors and fetomaternal outcome of jaundice in pregnancy.

Aims and objective of present study was to evaluate the incidence of jaundice, biochemical alterations, fetomaternal outcome and various liver pathologies of pregnant patients with jaundice.

METHODS

This was a prospective observational study conducted in Dr S N Medical College Jodhpur, Rajasthan, India from June 2014 to Feb. 2016. Total fifty pregnant patients with jaundice were included in study. Source of data was antenatal patients of this institute. Study was approved by institutional ethical committee.

Inclusion criteria

All pregnant patients admitted with clinical jaundice and prodromal symptoms of hepatitis like fever with upper quadrant pain, anorexia, malaise, myalgia, arthralgia and vomiting followed by altered liver functions more than two times normal.

Exclusion criteria

Those delivered outside our tertiary care centre and associated with other co-morbid conditions like congenital heart disease and renal disease

After taking written consent, all patients fulfilling the inclusion criteria were subjected to detailed history, clinical examination and investigations including ANC profile, CBC, urine, blood sugar, liver functions tests, viral markers for hepatitis A, B, C and E, coagulation profile, hepatobiliary abdominal and obstetric ultrasounds were done.

All patients were managed by team collaboration of obstetrician, physician, gastroenterologist, anesthetist and critical care medicine. Soon after delivery all newborns were assessed by pediatrician. Alive or dead, sex, birth weight, gestational age assessment, presence or absence of any congenital malformations were looked for and noted. As per pediatrician opinion sick newborns were admitted in NICU. Maternal outcome was noted in terms of mode of termination of delivery, maternal complications and mortality. Fetal outcome was assessed by perinatal morbidity and mortality.

Statistics

Results were tabulated in excel sheet and data analyzed as frequencies, percentages and descriptive statistics for the study to be statistically significant.

RESULTS

Table 1: Clinical presentation.

Clinical symptoms & signs	No. of patients	Percentage
Headache	8	16
Convulsions	5	10
Nausea vomiting	24	48
Pruritis	7	14
Loss of appetite	4	8
Pain abdomen	15	30
Respiratory distress	4	8
Icterus	41	82
Hepatospleenomegaly	9	18
Fever	9	18
Yellow discoloration of urine	15	30
Oedema	18	36
Pallor	30	60

Out of 40,398 deliveries in our hospital, 50 cases of jaundice were identified giving an incidence of 1 in 808 (0.12%). Maximum no. of patients i.e. 52% belonged to age group 12-29 years. Most of the patients were primigravida (38%) followed by gravid 2 (32%). The total no. of multigravida was 31 (62%). Maximum no. of patients i.e. 94% were unbooked. All maternal mortality belongs to unbooked patients (12) and all the IUFDs also contributed by unbooked patients (17). Cases most commonly presented with icterus (82%) followed by pallor (60%) and nausea and vomiting (48%) (Table 1). Most common cause of jaundice in pregnancy in our set up was viral hepatitis i.e. 13 cases (26%) were HEV+ and 1 case (2%) came out to be HAV+. Second most common cause in our setup was septicemia, MODS and DIC (18%). Most of the cases of HEV+ hepatitis presented in their 3rd trimester (11) although a few (2) cases also presented in 2nd trimester. Similar was the picture with MODS and DIC. Rest of the etiologies were almost always seen in their third trimester.

Serum LDH levels were raised in 36% of patients. Most of the patients had their billirubin level on admission below 10mg% (76%). Only 2 cases presented with level above 20mg% and both suffered from mortality. Maximum no. of patients had their serum AST/ALT levels in the range of 100-1000 IU/ml (54%). Only 3 cases (all were HEV+) presented with much higher S. AST/ALT levels above 1000IU/ml. PT and APTT values were abnormal in 10% and 16% of patients respectively and all progressed to DIC and mortality (Table 2).

Maximum no. of babies had their birth weigh between 1.5-2.5 kg (68%) but still a few of them were IUFD babies and a few admitted to nursery due to low apgar score. Most of the babies with birth weight above 2.5 kg had good apgar score and neonatal outcome. Out of 52 births (2 twins) 34 were live births (65.38%) and rest

were either SB or IUFDs. Out of all live births, 20 were shifted to NICU and 14 were mother shifted and of all the babies shifted to NICU 4 suffered mortality. Most of the babies had low apgar score at birth and had NICU admission (38%). A large no. of infants suffered from intrauterine death probably due to high fetal billirubin and bile acid levels (28%) (Table 3).

Table 2: Laboratory investigations.

Laboratory parameters	No. of patients	%
S. LDH level		
Normal	32	64
Raised	18	36
Bilirubin level		
<10 mg%	38	76
10 – 14.9 mg%	6	12
15 – 19.9 mg%	4	8
>20 mg%	2	4
S. AST/ALT level		
<100 IU/ml	20	40
100-1000 IU/ml	27	54
>1000 IU/ml	3	6
Coagulation profile		
PT (Normal)	45	90
PT (Abnormal)	5	10
APTT (Normal)	42	84
APTT (Abnormal)	8	16

Most common causes of mortality in patients were Septicemia, MODS, DIC (25%) followed by HELLP syndrome and HEV+ viral hepatitis equally (16.67%). Out of the 50 cases observed 12 patients proceeded to mortality making a total of 24%. Grave outcome was seen in patients of septicaemia, MODS and DIC (4SB/IUD, 5 NICU and 5 mortality) and that of HELLP Syndrome (3 SB/IUD, 4 NICU and 2 mortality). Patients included for one or the other reasons (IUFD, eclampsia, preeclampsia, PROM etc) by various methods and all progressed successfully to vaginal delivery except 1 induction by dinoprostone gel (for antepartum eclampsia) which landed into LSCS. Maximum no. of patients delivered preterm babies i.e 44%, 18 delivered vaginally after 37 completed weeks, 9 by LSCS and 1 atypical case of laprotomy followed by extraction of IUD baby. Most of the maternal mortalities were contributed by disease co- incidental to pregnancy i.e. 10 out of 12. This group includes viral hepatitis and septicemia (Table 4).

Table 3: Fetal outcome.

Neonatal variables	No. of patients	%
Weight of new born		
<1.5 kg	12	24
1.5- 2.5 kg	31	62
>2.5 kg	7	14
Gestation	**No. of newborns**	
Preterm	22	44
Term	18	36
Neonatal follow up	**No. of newborns**	
Total live births	34 (1 twins)	65.38
SB	3	5.7
IUFD	15 (1 twins)	28.8
Early neonatal deaths	4	7.7

Table 4: Etiological distribution according to neonatal outcome and maternal outcome.

Etiology	Total No. of Patients N (%)	Neonatal outcome			Maternal mortality N (%)
		Live birth healthy	NICU admission	SB/IUFD	
HEV +ve	13 (26)	7	3	3	2 (15.3)
HAV +ve	1 (2)	1	0	0	0
HBsAg +ve	1 (2)	0	1	0	0
Septicemia, MODS and DIC	9 (18)	1	5(1 twins)	4	5 (55.5)
Dengue +ve	2 (2)	1	1	0	0
Cerebral Malaria	1 (2)	0	0	2 twins	1 (100)
ARDS	2 (4)	0	1	1	2 (100)
Septicemia	2 (4)	0	2	0	0
Cirrhosis	1 (2)	0	1	0	0
Portal HTN	2 (4)	0	1	1	0
Cholestatic	1 (2)	0	1	0	0
Macrocytic anemia with hemolytic jaundice	1 (2)	1	0	0	0
Antipartum Eclampsia	3 (6)	0	1	2	0
HELLP syndrome	7 (14)	0	4	3	2 (28.5)
Intrahepatic cholestasis of pregnancy	4 (8)	1	2	2	0

Table 5: Distribution according to complications.

Complications	No. of patients	Percentage
Renal dysfunction	9	18
DIC	12	24
PPH	30	60
Septicemia	30	60
ARDS	2	4
Encephalopathy	6	12
ICU/vasopressor/ ventilator support	22	44
Antiparturm hemorrhage	4	8

Maximum no. of patients. with jaundice suffered from postpartum haemorrhage and septicemia (60%) and a larger junk also had ICU stay and associated supports (44%) showing high morbidity in pregnancy with jaundice (Table 5).

DISCUSSION

Incidence came out to be comparatively lower in our institution1 in 808 (0.12%) due to large no. of patients being delivered in our tertiary care which caters whole of western Rajasthan and also the present study excluded those patients who delivered outside the hospital and came in puerperium. Maximum no. of patients reporting with jaundice were in the age group of 21-29 years showing that this is the reproductive age group of population (52%). Most of the patients were primigravida (38%) or either one birth or previous abortion (32%) giving a total of 70%. Total no. of multigravidas were 62%. Similar incidence was reported by other studies as Nagaria et al (78% of women were either primigravidas or 2nd gravid.[2] Acharya et al concluded that parity has no exact relation with disease, Reddy et al (61.1% as primigravida), Nath et al (38% of primigravidas).[8-10]

The most common symptoms were nausea and vomiting (48%), pain abdomen 30% and the incidence of these symptoms was common in all studies as mentioned above. Most common sign was icterus (82%). Pallor 60% nearly all patients presented in their 3rd trimester (86%). Only 7 out of 50 patients presented in their 2nd trimester. This may be due to etiological susceptibility or delayed diagnosis. All of the 7 were in there 6th month. Similar reports were given by Nagaria et al (95%), Acharya et al (40 out of 48 pts in their 3rd trimester) and Reddy et al (reported all of the 18 cases in their 3rd trimester).

Etiology

30% of cases were of viral hepatitis. Amongst them, 26% were infected with hepatitis E virus. Hepatitis E infection is very common in certain geographical areas in India and is one of the most common cause of mortality (16.6% i.e.

2 out of 16 cases). It was shown that viral hepatitis was common cause of jaundice in pregnancy (30%) [26% HEV+, 2% HAV+, 2% HBsAG+] followed by Septicemia, MODS and DIC (18%) and HELLP Syndrome (14%). HELLP Syndrome was seen in 20% of cases and all of these cases reported in advanced stage of disease with established complications leading to mortality of 2 of 7 cases. Incidence of cholestasis in pregnancy is comparable to those of other studies (10%). Nath et al reported infective hepatitis 49%, Cholestasis 15%, HELLP syndrome 20%. Acharya et al reported hepatitis 60% and HELLP syndrome 10%. Barge et al reported HEV 50%, HAV and HELLP 8.3% and cholestasis 20.8%.[11]

Laboratory investigations

Most of patients were having their bilirubin level below 10mg% (76%). Only 2 patients had bilirubin above 20mg%. Similarly most of the patients had AST/ALTT levels between 100 – 1000IU/ml% (54%) followed by levels below 100IU/ml. Only 3 cases had levels above 1000IU/ml. Nath J et al reported 21% with bilirubin 10-14mg% and 15% above 15mg%. Similarly, 70% of the patients had AST, ALT level 36-999 IU/ml followed equally by levels <35IU/ml and >1000IU/ml (15%). Reddy et al reported 44.4% of patients had bilirubin level >10 mg%. Of all the patients admitted 10% had PT level more than twice the control and 16% of patients had APTT level more than twice the control. Nath et al reported 28% of patients with PT/APTT level raised and 72% had this level normal.

Mode of delivery

Maximum no. of patients delivered vaginally without any active intervention needed. 27 out of 50 progressed spontaneously, 3 induced with mefipristone (for IUFD), 3 with oxytocin (IUFD, S. PIH), 3 with tab. Misoprostol (IUFD, S. PIH) and 4 with dinoprostone gel (IUFD, Out of all delivered vaginally, 18 out of 40 were term (45%) and 22 were preterm (55%). 18% of all patients were taken for LSCS for obstetric indications. Nath et al reported spontaneous vaginal delivery 59.7%, LSCS in 25.7%. Acharya et al reported prematurity 48% and maturity 51%.

Fetal outcome

Among the newborns, maximum no. had weight between 1.5-2.5 kg (62%) followed by weight below 1.5 kg (24%). Nath et al reported 35 out of 97 newborns (36%) as low birth weight (<2.5 kg) and 52 of 97 newborns (53.6%) as normal birth weight (>2.5 kg). Perinatal mortality was found to be 42.3% (18 either born SB/IUDs and 4 early neonatal deaths). 34 babies were live born giving a total of 65.3%. Prematurity and intrapartum asphyxia (due to meconium aspiration as found in almost 100% of deliveries) were found to be the most common

for NICU admissions and early neonatal deaths. The perinatal mortality reported by Acharya et al (16.6%) and Nath (16.4%) is lesser may be due to the reason that in the present study 34.5% cases had absent or non reassuring fetal heart status on admission, though the present institute had a very good neonatal care unit.

Maternal morbidity

Maximum no. of patients suffered from postpartum hemorrhage and septicemia (60%) followed by ICU/ vasopressor/ ventilator support (44%) as required. Other complications were DIC (24%), renal dysfunction (18%), encephalopathy (12%), APH (8%) and ARDS (4%). Incidence of PPH is comparatively higher in the present because of deranged coagulation profile and thrombocytopenia. Acharya et al reported 22 patients required ICU admission and 37 of 48 required blood transfusion. Reddy et al reported pre-eclampsia (5 of 18) and eclampsia (5 of 18) as a mojor complication.

Mortality

12 out of 50 patients of pregnancy with jaundice expired giving a mortality rate of 24%. Maximum no. of mortality is caused by Septicemia, MODS and DIC (25%) followed equally by HEV+ and HELLP Syndrome (16.67%). Similar incidence of high mortality was reported by Bera et al 19.9%, Nagaria et al 24.4%, Trivedi et al 29.3%, Sapre et al 4.99%, Barge et al 37.5%, Acharya et al 16.67%, Reddy et al 16.66% and Nath et al 10%.[12-15] It shows Septicemia MODS and DIC being the most dangerous entity with 5 out of 9 cases having mortality and 4 babies were born as SB/IUD and 5 were admitted to nursery. Out of the 15 cases of viral hepatitis, 2 patients suffered mortality (both HEV+), 3 babies born as SB/IUD, 4 were admitted to nursery and 8 were mother shifted. Similarly with HELLP Syndrome 2 mortalities occur out of 7, 4 babies born SB/IUD, and 3 shifted to nursery.

CONCLUSION

Most common cause of jaundice in pregnancy in our study was viral hepatitis. Maternal morbidities were PPH and septicemia. Fetomaternal outcome was poor in patients with septicemia. Public awareness about the various routs of transmission of different types of infective hepatitis, improving sanitary conditions and habits, health education of preventive measures can help in reducing the burden of jaundice in pregnancy. All what is needed is to combat the disease at an earlier stage by timely visit and adequate antenatal check up on the part of patient and earliest diagnosis and proper intervention on the part of obstetrician as multispeciality team approach to halt the disease before complications set in.

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