

A TERTIARY CARE CENTER-BASED CLINICAL INVESTIGATION OF THE FOETAL OUTCOME OF JAUNDICE IN PREGNANCY.

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Abstract.

Aim:

Irregularity in the liver function runs the maternal and other pregnancy aftereffects. The main aim of the investigation is to examine the fetal outcome of high bilirubin levels in pregnancy.

Methods:

61 pregnant women were examined in this study. The study was done at Nalanda Medical College for 24 months. In the beginning complete history, comprehensive clinical history, and other investigations were done. A systemic review system was used for recording the causes of liver dysfunction in pregnant women. Outcomes were studied in detail.

Results:

There were 61 patients in which the occurrence of jaundice was 1 and was more common in younger patients. 40% of the cases were infected with viral hepatitis, and 30% were suffering from HELLP syndrome.

Conclusion:

The constant problem for pregnant women is jaundice which also has unfavorable results on the neonatal outcome.

Recommendation:

Transfer to a tertiary care center is advocated. If the pregnant woman is at or beyond 34 weeks' gestation or if there is any evidence of multiorgan dysfunction or severe complication, immediate induction of labor is recommended. Close monitoring of the mother should be continued after delivery.

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1. INTRODUCTION:

Pregnancy is a therapeutic condition in which many physical changes affect many organs of the body including the liver. Jaundice and pregnancy are interrelated rarely. Jaundice is the phenomenon of hyperbiliary dysfunction. Jaundice

causes maternal and fetal morbidity and mortality and causes 3-5% of complications in pregnancies [1]. The occurrence in developed countries is approximately 0.2% but in developed countries it can vary from 5-25% or even more [2]. Jaundice may be fatal to both mother and fetus. The diagnosis of liver disease is tough and depends on laboratory investigations. Symptoms like nausea, vomiting, or abdominal pain are not specific to jaundice. Early diagnosis was needed for the bet-

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terment of the patient and appropriate management.

Jaundice can make a pregnancy a high-risk pregnancy. Pregnancy in jaundice can lead to many maternal complications like coagulopathy, hepatic encephalopathy, renal failure, etc. as well as fetal complications which can cause fetal and maternal death. An increase in the level of bilirubin leads to a constriction of vessels of the placenta and heart toxicity which results in neonatal encephalopathy and fetal loss. Increased serum bilirubin creates a cellular effect that triggers the contraction of uterine and hardens myometrium to oxytocin resulting in premature birth. The prognosis is based on the type of liver disease and the timing of the delivery.

Liver disease was a frequent cause of jaundice in pregnancy. Many factors are directly associated with jaundice, but some are coincidental like aberrant liver function specific to pregnancy, pre-renal causes, and post-renal causes of jaundice.

During the second trimester, obstetric cholestasis occurs which is treated after delivery. Obstetric cholestasis did not affect much maternal morbidity, but it affected fetal outcome. Obstetric cholestasis has the capability of causing placental insufficiency which in turn leads to many fetal complications like prematurity, anoxia, fetal distress, and also stillbirth [2].

Abnormal liver function tests were seen in 2-6% of cases because of coincidental liver diseases, basic long-term renal disease, and other reasons like intrahepatic cholestasis of pregnancy or acute fatty liver of pregnancy [3]. Acute fatty liver in pregnancy generally occurs in the second and third trimesters.

Hepatic dysfunction in pregnancy can occur because of various examinations. On the whole, it can be categorized as liver disease unique to pregnancy, liver disease coincidental with pregnancy, and the patient who already has liver disease with pregnancy [4]. Preeclampsia, HELLP, and acute fatty liver of pregnancy are together termed pregnancy-associated acute liver disease (PAALD) and are associated with more severe forms of liver diseases. The existence of ascites and high blood pressure are also seen in connec-

tion with the diagnosis of PAAL [5].

The prevalence of viral hepatitis can be decreased by making educational approaches, proper sanitization facilities, safe drinking water, and equipped hospitals for neonatal intensive care units. By taking these measures the mortality and morbidity of jaundice in pregnancy can be reduced. The main motive of the study is to examine the reason for liver dysfunction in pregnancy. The following objectives were taken into account

- To approximate the occurrence of liver dysfunction in pregnancy.
- To find the cause of liver dysfunction in pregnant women.

2. MATERIALS AND METHODS:

2.1. Study Location:

The study was organized in the Obstetrics and Gynecology Department of Nalanda Medical College, Patna, Bihar for two years.

2.2. Inclusion criteria:

Pregnant patients with jaundice or unstable liver function test during pregnancy during all trimesters.

2.3. Exclusive criteria:

Jaundice present before the pregnancy, jaundice that occurs after childbirth, and patients who were not ready to be part of the study.

The patients were examined in detail concerning statistical data, consistency, gestational age, history of present-day and past pregnancies, and any other history like anemia, family history of hemolytic anemia, etc. Furthermore, subjects underwent complete physical examination in which dehydration, signs of liver failure, and hypertension in pregnancy were duly documented. For patients who were in labor a pelvic examination was taken, mode of delivery was chosen.

2.3.1. *Following is the investigation which was carried out in the subjects*

- Ultrasound of abdomen and pelvis.
- Urine test for protein and albumins, bile salts, and bile pigments.
- Complete blood count, liver function tests, and coagulation profile.

All the labor episodes were noted if the delivery was induced or spontaneous and whether the delivery was normal or cesarean. The patient was followed up till admission to the hospital and the maternal outcome was recorded. Other complications like fulminant liver failure, eclampsia, and acute renal failure were also noted.

Statistical Analysis: Prism v 5.0 (Carlsbad, California, USA) and Medcalc software were used for the statistical analysis.

3. RESULTS:

During 24 months, 61 patients with jaundice were presented. At the initial stage, several 100 patients were examined for eligibility, however, 39 patients were excluded from this study due to not being eligible. Most of the subjects were associated with an age range of 25-35 years. 20 years is the lower age and 30 is the upper age. 65% of the study groups were associated with the low socioeconomic group and for the upper class there were no patients.

Viral hepatitis was detected as the root cause of jaundice which was established by serological tests after the differential diagnosis by noting the symptoms. Acute hepatitis E was most frequently seen in viral hepatitis. Physical examination and relevant investigation like platelets count, liver function test, viral markers, coagulation profile, and ultrasound of fetus and abdomen were done when it was required. Also, the history of patients was taken including the patient's age, socioeconomic status, and menstrual history.

95% of the patients delivered vaginally in the number of 61 cases, the patient having an earlier cesarean delivery and fetal distress LSCS was performed. 10 of them had premature delivery which

was normal and vaginal delivery. 75% had term delivery. The body mass of babies was under 4kgs, ranging between 3kgs – 4kgs. 30 cases were stillbirths. Within 5 minutes of birth, the APGAR score assessing the respiratory effort was recorded. Resuscitation was needed in the mode of mask ventilation or intubation for the babies who had APGAR below 7 within 5 minutes. Heart rate, muscle tone reflexes, and skin color were also recorded.

In Table 1, 8 patients (13%) were diagnosed with jaundice in 15-27 weeks of gestational age, in gestational age 27-31 weeks 8 patients were diagnosed with jaundice, in 31-36 weeks 24 patients were diagnosed with jaundice, in 36-39 weeks 19 patients diagnosed with jaundice the 2 patients were diagnosed with jaundice after 39 weeks of gestational period.

As shown in Table 2 viral hepatitis was the cause of jaundice in 22 patients (35.6%), 20 HELLP syndrome (32.4%), 2 from the acute fatty liver of pregnancy (3.2%), 2 by Acute cholecystitis (3.2%) and hyperemesis gravidarum was the cause of jaundice in 2 patients.

6 patients had intrauterine death (9.8%), 4 of them has still birth (6.3%), prenatal death in 6 patients (9.6%), MSAF in 28 patients (45.1%), 17 still born (61.4%), premature delivery in 18 patients (28.9) (Table 3).

4. DISCUSSION:

The main objective of the study was to examine the fetal outcomes with the presence of jaundice and unstable liver function tests in pregnancy. During the study period, there were a total of 5000 took place and 61 patients had jaundice. The rate of jaundice in this study was 0.20%. The occurrence of jaundice in the studies organized by Nagaria et al., Oladokum et al., and Patel et al. was 0.5%, 0.4%, and 0.3% [6,7,8].

65% of the cases belonged to the lower socioeconomic class. No patients were there from the upper socioeconomic class. Because of poor sanitation and nutrition people from lower socioeconomic classes were prone to jaundice. Jaundice occurs mostly in the third trimester of pregnancy.

Table 1: Gestational age at diagnosis distribution of patients' study.

Gestational age of diagnosis (weeks)	No. of patients	Percentage
15-27	8	13
27-31	8	13
31-36	24	35.4
36-39	19	35.4
>39	2	3.2
Total	61	100.0

Table 2: Cause of jaundice.

Cause of jaundice	No. of patients	Percentage
Viral hepatitis	22	35.6%
HELLP syndrome	20	32.4%
Intrahepatic cholestasis of pregnancy	13	22.4%
Acute fatty liver of pregnancy	2	3.2%
Acute cholecystitis	2	3.2%
Hyperemesis Gravidarum	2	3.2%
Total	61	100

Table 3: Summary of adverse fetal outcome

Event	Number	Percentage
Intrauterine death	6	9.8%
Stillbirth	4	6.3%
Prenatal death	6	9.6%
MSAF	28	45.1%
Stillborn	17	61.4%
Preterm delivery	18	28.9%

90 % of the patients had jaundice in the third trimester.

The most common cause of jaundice was infective hepatitis and hepatitis E (73.8%) amid infectious hepatitis and then hepatitis A. The second common cause of jaundice in pregnancy is HELLP syndrome (33.4). In a study run by Ling YI et al, 50% of patients had jaundice because of contagious causes [9]. Trivedi et al observed that maternal deaths are directly proportional to an increase in the level of serum bilirubin level [10].

Vaginal delivery is the proper way of delivery for a woman. Meconium staining of amniotic fluid is commonly found in women with jaundice. 20 women with meconium staining of amniotic fluid

whom 10 babies had less than 7 APGAR at 5 minutes.

HELLP syndrome is the most common cause of jaundice. HELLP syndrome causes 3 cases of intrauterine fetal death and 2 babies with stillbirth. Uteroplacental insufficiency with pre-eclampsia could be the reason for the prenatal poor outcomes.

Many of the deliveries were premature spontaneous or cesarean due to obstetric indications. Many of the infants were kept for observation in the neonatal intensive care unit. In a study by Patel et al 68.8% of deliveries were premature and 8.8% were stillbirths. The prenatal outcome in Patel et al study is comparable to the study con-

ducted by Oladokun et al [8].

5. CONCLUSION:

Jaundice in pregnancy is very dangerous for the mother and fetal well-being. Jaundice is not a simple disorder it requires an experienced physician in a specialized center. Viral hepatitis and preeclampsia/ HELLP are the common causes of jaundice in pregnancy. This disorder requires early diagnosis as the patients who come from lower socioeconomic classes reach the care center very late. A high-quality neonatal intensive care unit would help in decreasing maternal and prenatal mortality and morbidity. By knowing the etiology of the disorder improvements could be made for maternal and fetal survival. Proper sanitization and a proper nutritional diet can help to improve the condition.

6. LIMITATIONS:

The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of a comparison group also poses a limitation for this study's findings.

7. RECOMMENDATION:

Transfer to a tertiary care center is advocated. If the pregnant woman is at or beyond 34 weeks' gestation or if there is any evidence of multiorgan dysfunction or severe complication, immediate induction of labor is recommended. Close monitoring of the mother should be continued after delivery.

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9. LIST OF ABBREVIATIONS:

HELLP- hemolysis, elevated liver enzymes, and low platelets
PAALD- pregnancy-associated acute liver disease
LSCS- Lower segment Cesarean section
APGAR- Appearance, Pulse, Grimace, Activity and Respiration
MSAF- meconium-stained amniotic fluid

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11. CONFLICT OF INTEREST:

The authors report no conflicts of interest in this work.

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