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Fetomaternal Outcome of Jaundice in Pregnancy in a Tertiary Care Hospital

[1]Shankhadhar Panja and [2]Fahim Al Mamun

[1]*Department of Obstetrics and Gynaecology, Shantiniketan Medical College and Hospital, Gobindapur, Muluk, Bolpur, West Bengal 731204, India*

[2]*Department of Obstetrics and Gynaecology, Tufanganj Subdivision Hospital, RRN Road, Puratan Post Office Para, Cooch Behar, West Bengal 736101, India*

ABSTRACT

The term "morbus regius" formerly referred to jaundice and it was thought that a king's touch may be the sole remedy. The word jaundice originated from the French word jaune, which signifies yellow. Hippocrates wrote about the yellow discolouration associated with fever before the year 400 B.C. The purpose of this research is to determine the appropriate management of jaundice in pregnancy based on etiological factors, as well as to identify various etiological factors leading to jaundice in pregnancy, evaluate various maternal complications in patients with jaundice in pregnancy and observe various adverse fetal outcomes in mothers with jaundice in pregnancy. The present study was a prospective observational study. This Study was conducted from 18 months at department Obstetrics and Gynaecology, Calcultta National Medical College and Hospital, Kolkata. Total 40 patients were included in this study. Majority of patients are with Preterm Pregnancy (<37 weeks) with 78.8 and 21.2% cases are term pregnancy. All of the Patients (100%) have icterus and 45% of the patients have pallor. The least is pedal oedema (17.5%). We saw from the study that maximum number of patients that causes jaundice are Obstetrics Cholestasis (65%). Next etiology is Hepatitis, among them HAV is 1, HEV is 1, AntiHCV is 1 and 4 of them are Surface Antigen (HBsAg) positive. The least common cause is Severe preeclampsia (17.5%) along with Hepatitis. In conclusion, the study of fetomaternal outcomes of jaundice in pregnancy at a tertiary care hospital highlights the significant impact of this condition on both maternal and fetal health. Jaundice during pregnancy is associated with increased maternal complications, including preeclampsia, hepatic dysfunction and a higher incidence of cesarean deliveries. Fetal outcomes also demonstrate a heightened risk, with increased rates of preterm birth, low birth weight, fetal distress and in severe cases, stillbirth. Early diagnosis, close monitoring and appropriate medical interventions are crucial in improving both maternal and neonatal outcomes. The findings underscore the need for enhanced awareness, timely referral and multidisciplinary management of pregnant women presenting with jaundice to mitigate potential adverse outcomes.

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Key Words
Maternal morbidity, hemorrhage, coagulopathy, maternal mortality

Corresponding Author
Fahim Al Mamun,
Department of Obstetrics and Gynaecology, Tufanganj Subdivision Hospital, RRN Road, Puratan Post Office Para, Cooch Behar, West Bengal 736101, India

Author Designation
[1]Assistant Professor
[2]Specialist Medical Officer

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INTRODUCTION

The term "morbus regius" formerly referred to jaundice and it was thought that a king's touch may be the sole remedy. The word jaundice originated from the French word jaune, which signifies yellow. Hippocrates wrote about the yellow discolouration associated with fever before the year 400 B.C. Hippocrates used raw ox liver steeped in honey to cure liver illness and night blindness. According to Cotton Mather's 1724 statement, Morbus Regius, also known as The Royal Disease, bestows upon its victims the "Color of Gold." Stadeler first used the term "bilirubin" in 1864. Following his publication of "Klinik der Leberkrankheiten" in 1858, Friedrich Theodor Frerichs is referred to as the founder of modern liver pathology starting in 1862.

A multitude of physiological changes in the heart, lungs, kidney and liver are among the conditions that define pregnancy. Excessive blood levels of progesterone and estrogen have been shown to impact the liver's ability to excrete, synthesize and function during pregnancy. The course of acute and chronic liver illnesses, as well as the result for the fetus and mother, are therefore modified by the different hemodynamic, immunological and hormonal changes that occur during pregnancy. Examining a patient reveals visible signs of liver illness, such as spider angiomas and palmar erythema, which are typically present during pregnancy because of the elevated estrogen levels. Liver diseases are a significant source of morbidity and death in both neonates and mothers, complicating 3-5% of pregnancies[1]. It represents 60% of prenatal cases and 14% of Tripti *et al*.[2].

The incidence of jaundice in pregnancy is found to vary throughout the world. It is around 0.1% in developed countries and ranges from 3-20% or higher in developing countries. Incidence of jaundice in pregnancy is 0.4-0.9/1000 in India 2. Viral hepatitis is the most common cause of jaundice in pregnancy followed by cholestasis. The most common viruses responsible for viral hepatitis are hepatitis A (HAV), hepatitis B (HBV), hepatitis C (HCV), hepatitis E virus (HEV). Jaundice is the most common symptom of acute hepatitis. In developing countries like India, hepatitis E is the commonest cause of fulminant hepatic failure in pregnancy, mostly occurring in the third trimester of pregnancy leading to high maternal mortality ranging from 15-45%[3].

Pregnant women who have hepatitis E are at a higher risk of suffering fulminant hepatic failure and death compared to those who live in industrialized nations, where the virus is more prevalent[4]. When contrasted with other causes of acute viral hepatitis in pregnancy, it seems to be linked to a greater likelihood of maternal death as well as poorer obstetric and fetal outcomes in India. The objectives of this study are to identify various etiological factors that contribute to pregnancy-related jaundice, assess various maternal complications in patients experiencing pregnancy-related jaundice, observe various adverse fetal outcomes in mothers experiencing pregnancy-related jaundice and determine the best course of action for treating pregnancy-related jaundice based on etiological factors.

MATERIALS AND METHODS

This prospective observational study was conducted in the department of Obstetrics and Gynaecology, Calcutta National Medical College, Kolkata from April, 2018 to September, 2019. A protocol detailing the aims and methodology of the study was developed and approval was obtained from the institutional ethical committee to carry out the study. An informed written consent was obtained from the woman or her legally authorized guardian for inclusion in the study depending upon the mental alertness of the patient.

Study area: Department of Obstetrics and Gynaecology, Calcultta National Medical College and Hospital, Kolkata, India.

Study design: It is a prospective observational study.

Study period: One and half years [April, 2018 to September, 2019].

Sample size: Approximately 40 cases.

Sample selection:

Inclusion criteria:

- Pregnant women with serum bilirubin level >2 mg dL^{-1}
- Any gestational age
- Including both primi and multi gravida

Exclusion criteria:

- Patient are not willing to take part in the study
- Serum bilirubin level <2 mg dL^{-1}
- Jaundice associated with heart disease, DM
- Other medical complication

Sample technique: After taking Informed consent the pregnant mothers details will be collected on predesigned proforma which will include obstetric history taking, examination and investigation.

Tools: 40 cases will be selected from ANC, labour room ward of CNMC&H. Examination and investigations will be carried out and data analyzed was done.

Statistical analysis: For statistical analysis, data were initially entered into a Microsoft Excel spreadsheet and then analyzed using SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism (version 5). Numerical variables were summarized using means and standard deviations, while categorical variables were described with counts and percentages. Two-sample t-tests, which compare the means of independent or unpaired samples, were used to assess differences between groups. Paired t-tests, which account for the correlation between paired observations, offer greater power than unpaired tests. Chi-square tests (χ^2 tests) were employed to evaluate hypotheses where the sampling distribution of the test statistic follows a chi-squared distribution under the null hypothesis, Pearson's chi-squared test is often referred to simply as the chi-squared test. For comparisons of unpaired proportions, either the chi-square test or Fisher's exact test was used, depending on the context. To perform t-tests, the relevant formulae for test statistics, which either exactly follow or closely approximate a t-distribution under the null hypothesis, were applied, with specific degrees of freedom indicated for each test. p-values were determined from Student's t-distribution tables. A $p \leq 0.05$ was considered statistically significant, leading to the rejection of the null hypothesis in favour of the alternative hypothesis.

RESULTS

Majority of patients are with Preterm Pregnancy (<37 weeks) with 78.8 and 21.2% cases are term pregnancy. All of the Patients (100%) have icterus and 45% of the patients have pallor. The least is pedal oedema (17.5%). We saw from the study that maximum number of patients that causes jaundice are Obstetrics Cholestasis (65%). Next etiology is Hepatitis, among them HAV is 1, HEV is 1, AntiHCV is 1 and 4 of them are Surface Antigen (HBsAg) positive. The least common cause is Severe preeclampsia (17.5%) along with Hepatitis. Majority of the patients (70%) was admitted in the ICU as Jaundice in pregnancy carries grave complications like Hepatic encephalopathy, DIC, PPH, placental abruption, HELLP syndrome and is responsible for maternal deaths. Fetal outcome should be assessed by APGAR score after birth at 1 min and at 5mins. 61.8% of the babies have Critically Low APGAR score (0-3), followed by 23.5% of babies have Below Normal (4-6) and at last 14.7% of babies have Normal (> = 7) APGAR score (Table 1-3).

Table 1: Distribution according to period of gestation, maternal sign and types of hepatitis

Parameter	Frequency	Percentage
POG		
<37	26	78.8
> = 37	7	21.2
Total	33	100.0
Maternal sign		
Icterus	40	100.0
Pallor	18	45.0
Pedal oedema	7	17.5
Types of hepatitis		
Hepatitis A	1	2.5
HBsAg	4	10.0
Anti HCV	1	2.5
Hepatitis E	1	2.5
Total	7	17.5

Table 2: Distribution according to ICU admission and complication

Parameter	Frequency	Percentage
ICU admission		
No	12	30
Yes	28	70
Total	40	100
Complication		
Present	28	70
Absent	12	30
Total	40	100

Table 3: Distribution according to Apgar score

APGAR score	Frequency	Percentage
Critically low (0-3)	21	61.8
Below normal (4-6)	8	23.5
Normal (> = 7)	5	14.7
Total	34	100.0

DISCUSSION

The incidence of jaundice in India varies from 0.4 to 0.9/1000 deliveries. According to 0ur study incidence is 0.18/1OOO deliveries, which is low with comparison with Kamalajayaram and Devi *et al*.[5] reported 0.4/1000 incidence. Singh *et al*.[6] reported 1.03/1000 incidence. In our study, most of the patients were in the age group of 21-30 years, which is comparable with Sharma *et al*.[7] In the study done by Patel *et al*.[8] most of the patients were in the age group of 20-24 years. In the study done by Mitta and Rao[9] most of the patients were in the age group of 21-25 years of age.

This condition primarily affects Multigravida, or third gravidas. Seventy-eight percent of patients had preterm pregnancy (34 weeks). 82.5% of patients are admitted from emergency rooms without a reservation. Obesity-related cholestasis accounts for 65% of cases, with hepatitis and severe preeclampsia following at 75% each. In the trial group, two patients passed away from DIC and hepatic encephalopathy.

In our study, primiparas made up 35.5% and multiparas made up 37.5%. Of the participants in the research of Satia and Jandhyala[10], 49% were primipara. 66.6% of the participants in the Sharma *et al*.[7] were primipara. 61.9% of the participants in the study of Mitta and Rao[9] were multipara. Just 82.5% of the study's participants were unbooked. 2.5% of the patients in our research had hepatic encephalopathy. PPH was found in our study at a relatively high prevalence of 35%. in contrast to other difficulties. According to our research, jaundice is most frequently caused by obstetric cholestasis. In our study, 25% of the patients had a cesarean section and 75% of the patients were delivered vaginally.

In our study percentage of deaths due to jaundice amongst total maternal deaths is 5.4% which is comparable to Sapre and Joshi. It is low compare to other studies like Roychowdhary *et al*.[11] and Tripti and Sarita[2]. In our study, Obstetric Cholestasis is the commonest cause for jaundice. DIC and hepatic encephalopathy both are the most common cause for jaundice and associated with high mortality and morbidity comparing with other studies the incidence of both of them in our study 2.5%. In our study the majority of the babies are preterm (78.8%). Comparing with other studies the incidence of live births (82.5%), incidence of low birth weight and IUGR is 7.5%, in our study incidence of intrauterine fetal death is 5%, which is low compare with other studies.

Preterm deliveries accounted for 78.8% of all births; of these, 60% of the infants in our research were admitted to the NICU and 7.5% of the newborns had IUGR. In comparison to other research, the MSAF in our study is 12.5%, which is quite low.

CONCLUSION

In conclusion, jaundice during pregnancy poses a serious risk to the health of the fetus and mother, especially in tertiary care settings where high-risk patients are frequently transferred. The reduction of maternal and fetal morbidity and death is contingent upon an accurate diagnosis and prompt care. Better results can be attained, minimizing the negative consequences on the mother and the fetus, by increased clinical awareness, early identification and multidisciplinary treatment. The results of this investigation highlight the significance of close observation and tailored treatment for expectant mothers with jaundice.

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