

Observational Study of Maternal and Fetal Outcome in Jaundice Complicating Pregnancy In Mid And Third Trimester Of Gestation In A Tertiary Care Hospital

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I. Introduction

The incidence of jaundice in India varies from 0.4 to 0.9/1000 deliveries.¹ Jaundice in pregnancy carries a grave prognosis for both the mother and the fetus, and is responsible for 10% of maternal deaths. Liver disease in pregnancy is an important medical disorder seen more often in developing countries than in developed ones. Abnormal liver test results are obtained in 3% to 5% of pregnancies because of many potential causes and the clinical outcomes ranges from self-limiting to rapidly fatal.

Jaundice in pregnancy whilst relatively rare has potential serious consequences for maternal and fetal health. The hemodynamic, hormonal and immunological changes unique to pregnancy not only alter the course of both acute and chronic liver diseases in pregnancy, they may also affect outcome of pregnancy.

II. Aim and Objectives

To evaluate maternal and perinatal morbidity and mortality in jaundice complicating pregnancy in mid and third trimester of gestation.

To analyze the epidemiological and clinical profile of jaundice complicating pregnancy.

III. Materials And Methods

PLACE OF STUDY:- Gandhi Hospital, Secunderabad

STUDY DESIGN:- Prospective Comparative study

SAMPLE SIZE:-30 study group, 120 controls

STUDY DURATION:- 2016 December to 2017 December

SOURCE OF THE DATA:- All the Antenatal cases attending OPD or admitted under OBG department at Gandhi Hospital as per inclusion and exclusion criteria.

INCLUSION CRITERIA:

All primigravida and multigravida >14weeks gestation age with jaundice complicating pregnancy attending the antenatal clinic at Gandhi medical college between 2016-2017.

EXCLUSION CRITERIA:

Patient refusal or inability to provide informed consent

Drug induced hepatitis

Chronic hepatitis (HBV, HCV, AUTOIMMUNE HEPATITIS)

Wilson's disease, cirrhosis of liver, Buddchiari syndrome

Haemolytic anaemia

CBD stones, CBD strictures, Biliary parasitosis

Pregnancies with evident fetal anomalies.

IV. Methodology

This is an observational study conducted in the Department of Obstetrics and Gynaecology, Gandhi Medical College, Secunderabad between December 2016 and December 2017. The study included a target number of 150 subjects with 30 as jaundice group (cases) and 120 as normal group (controls).

The cases comprised of 30 women with jaundice complicating pregnancy fulfilling the inclusion and exclusion criteria. Controls comprised of 120 pregnant women fulfilling the inclusion criteria and exclusion criteria selected randomly. All the women gave informed consent to participate in the study, which was approved by the institutional ethics committee.

OUTCOMES MEASURED

The following maternal and fetal parameters and complications are recorded:

MATERNAL:

- 1) Age and gestational age.
- 2) Total serum bilirubin at admission
- 3) Hemolysis elevated liver enzymes low platelet count (HELLP)
- 4) Intrahepatic cholestasis of pregnancy (ICP)
- 5) Acute fatty liver of pregnancy (AFLP)
- 6) Acute renal failure (ARF)
- 7) Disseminated intravascular coagulopathy (DIC)
- 8) Postpartum hemorrhage (PPH)
- 9) Sepsis
- 10) Need for blood and blood products transfusion
- 11) Hepatic encephalopathy/ hepatic coma
- 12) Maternal outcome
- 13) Mode of delivery

FETAL

- 1) Term / preterm
- 2) Live/Intrauterine fetal Death / still born
- 3) Neonatal outcome

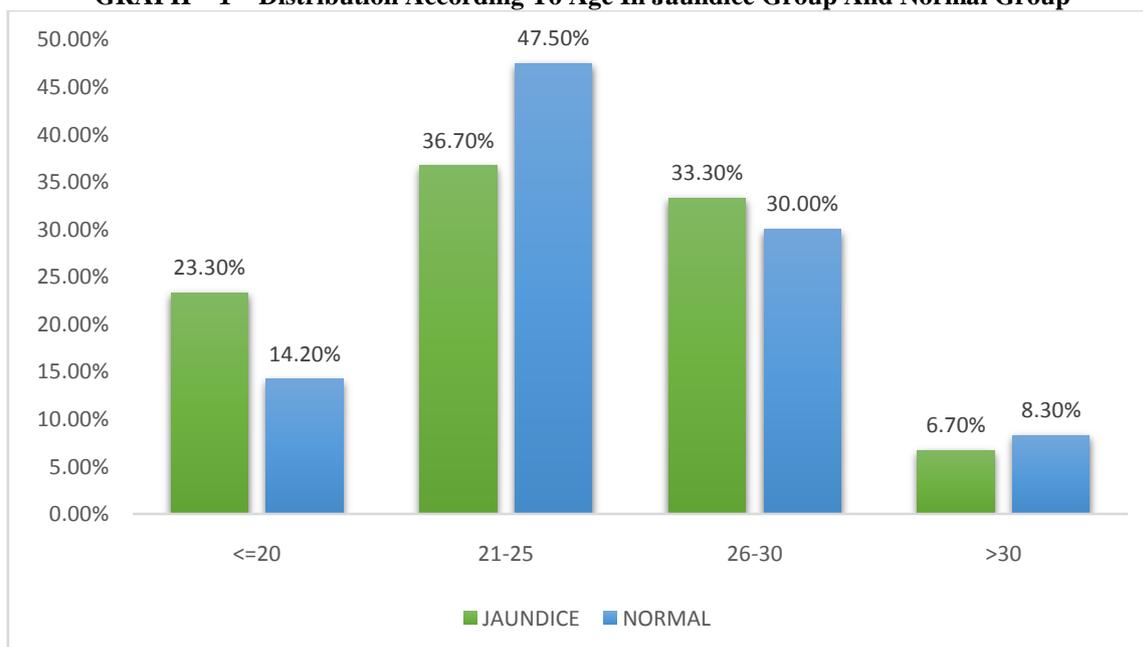
V. Observation And Results

TABLE – 1 – Distribution According To Age (In Years) In Jaundice Group And Normal Group

| AGE | GROUP | | TOTAL |
|---------|-------------|--------------|--------------|
| | JAUNDICE | NORMAL | |
| ≤ 20 | 7 (23.3%) | 17 (14.2%) | 24 (16.0%) |
| 21 – 25 | 11(36.7%) | 57 (47.5%) | 68 (45.3%) |
| 26 – 30 | 10 (33.3%) | 36 (30.0%) | 46 (30.7%) |
| >30 | 2 (6.7%) | 10 (8.3%) | 12 (8.0%) |
| TOTAL | 30 (100.0%) | 120 (100.0%) | 150 (100.0%) |

CHI SQUARE = 2.052, P VALUE = 0.562 (NS), MEAN=24.5

GRAPH – 1 – Distribution According To Age In Jaundice Group And Normal Group



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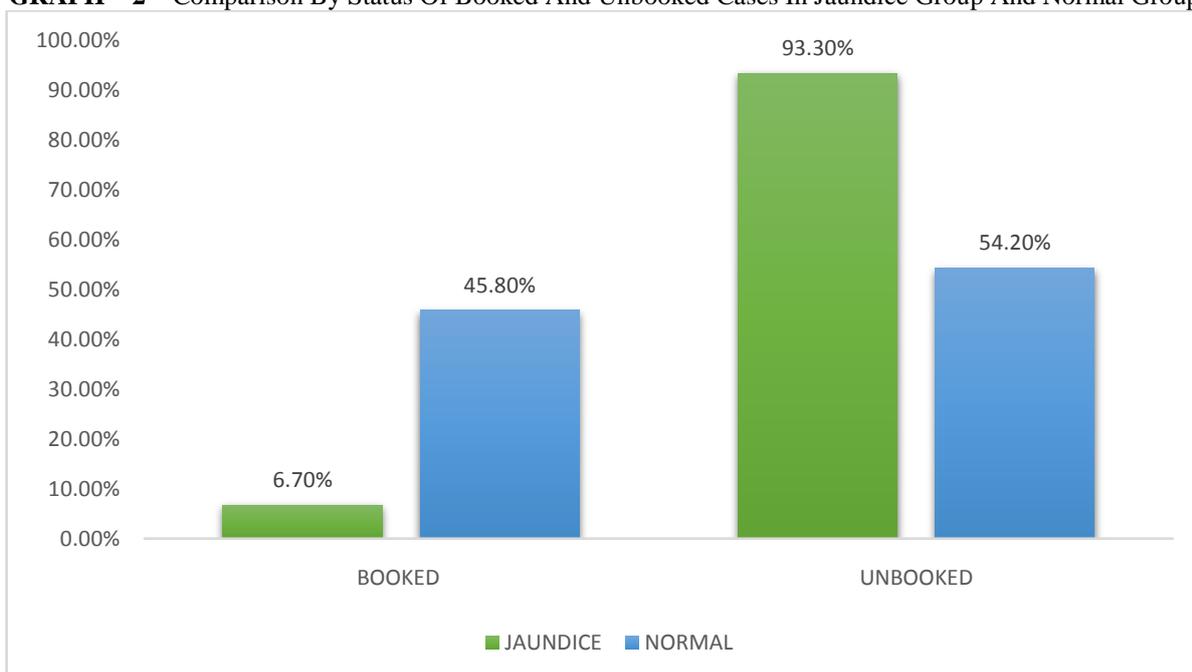
Maximum number of cases were between 21-30 years. Between 21-25 years it was 36.70% in jaundice group and 47.50% in normal group. Between 26-30years it was 33.30% in jaundice group and 30% in normal group. Mean age was 24.5 years in jaundice group.

TABLE – 2 – Comparison By Status Of Booked And Unbooked Cases In Jaundice Group And Normal Group

| REGISTRATION | GROUP | | TOTAL |
|--------------|-------------|--------------|--------------|
| | JAUNDICE | NORMAL | |
| BOOKED | 2 (6.7%) | 55 (45.8%) | 57 (38.0%) |
| UNBOOKED | 28 (93.3%) | 65 (54.2%) | 93 (62.0%) |
| TOTAL | 30 (100.0%) | 120 (100.0%) | 150 (100.0%) |

CHI SQUARE = 15.627, P VALUE = 0.001 (S)

GRAPH – 2 – Comparison By Status Of Booked And Unbooked Cases In Jaundice Group And Normal Group



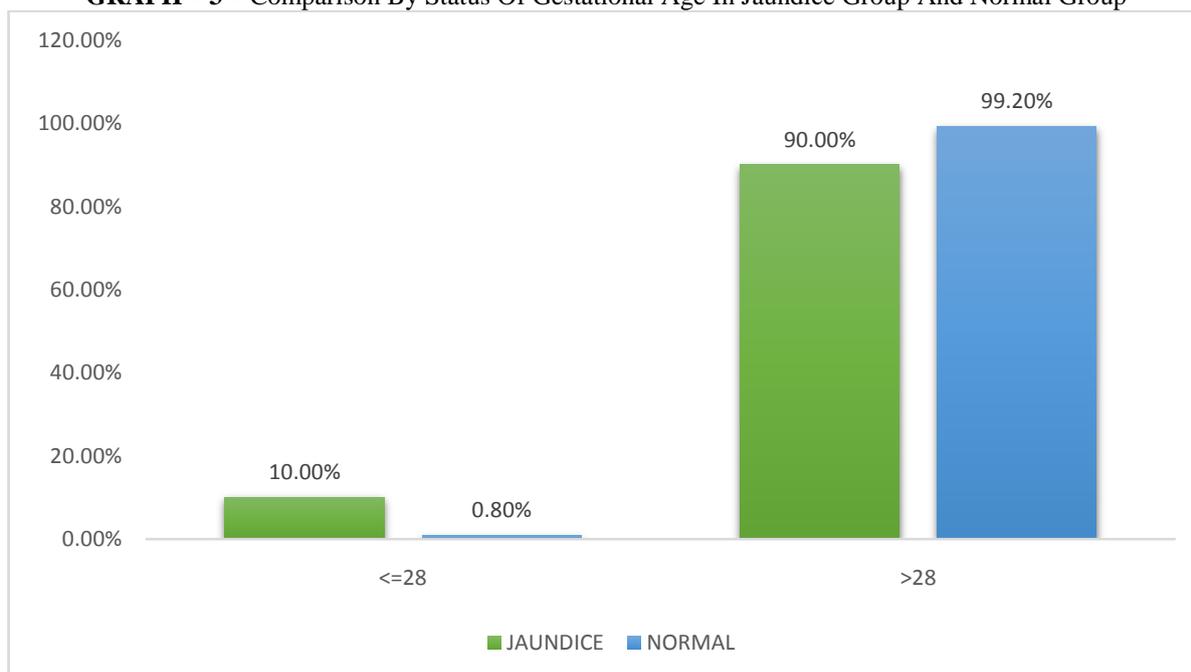
The number of booked cases were 6.70% in jaundice group and 45.80% in normal group. The number of unbooked cases were 93.30% in jaundice group and 54.20% in normal group.

TABLE – 3 – Comparison By Status Of Gestational Age(In Weeks) In Jaundice Group And Normal Group

| GESTATIONAL AGE | GROUP | | TOTAL |
|-----------------|-------------|--------------|--------------|
| | JAUNDICE | NORMAL | |
| ≤ 28 WEEKS | 3 (10.0%) | 1 (0.8%) | 4 (2.7%) |
| >28 WEEKS | 27 (90.0%) | 119 (99.2%) | 146 (97.3%) |
| TOTAL | 30 (100.0%) | 120 (100.0%) | 150 (100.0%) |

CHI SQUARE = 7.77, P VALUE = 0.005 (S)

GRAPH – 3 – Comparison By Status Of Gestational Age In Jaundice Group And Normal Group

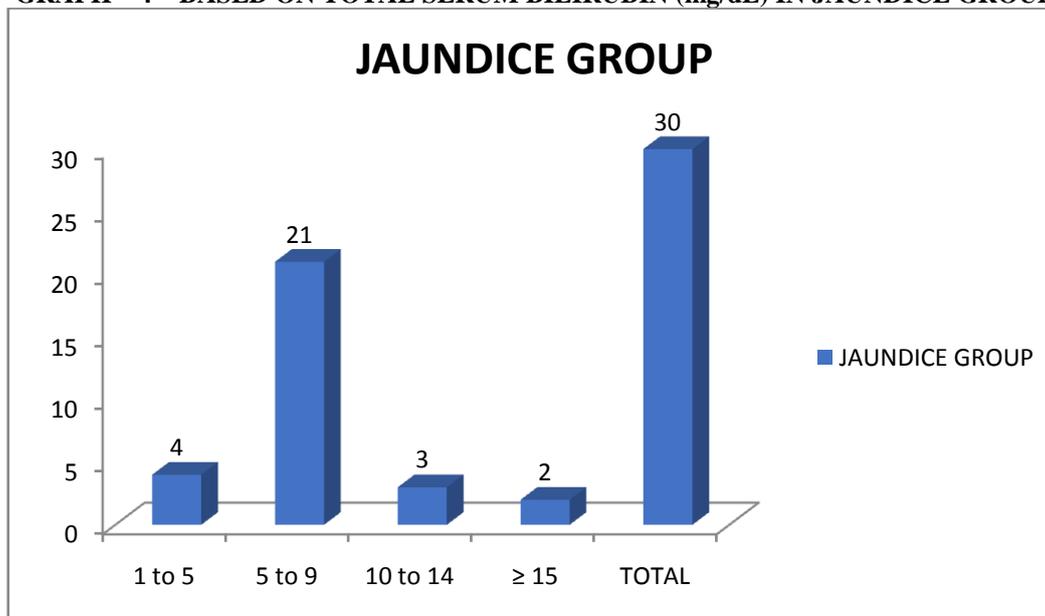


Women who delivered at ≤ 28 weeks gestational age were 10% in jaundice group and 0.8% in normal group. Women who delivered at >28 weeks gestational age were 90% in jaundice group and 99.20% in normal group.

TABLE – 4 – Based On Total Serum Bilirubin (Mg/Dl) In Jaundice Group

| TOTAL SERUM BILIRUBIN | JAUNDICE GROUP |
|-----------------------|------------------|
| 1 to 5 | 4 (13.3%) |
| 5 to 9 | 21 (70%) |
| 10 to 14 | 3 (10%) |
| ≥ 15 | 2 (6.7%) |
| TOTAL | 30 (100%) |

GRAPH – 4 – BASED ON TOTAL SERUM BILIRUBIN (mg/dL) IN JAUNDICE GROUP

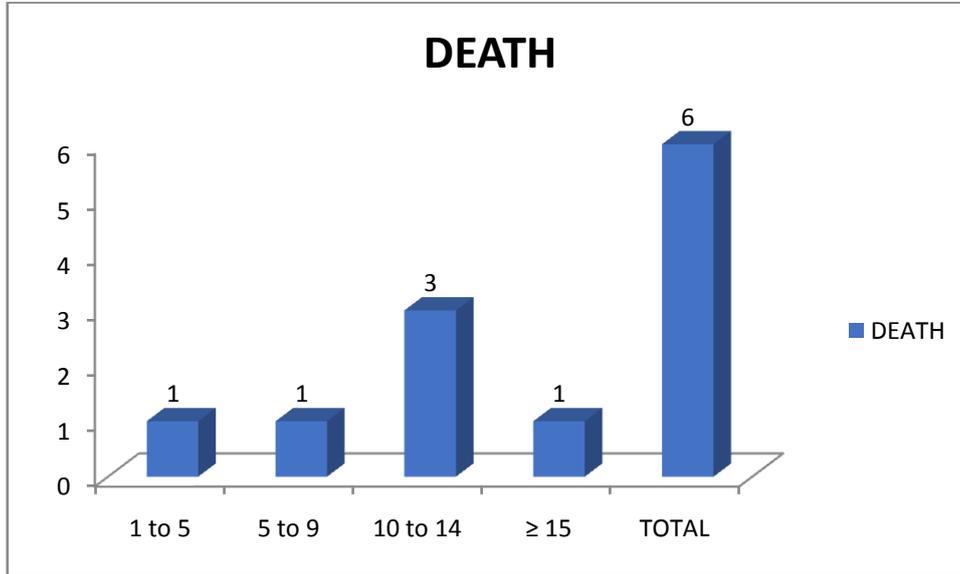


In jaundice group initial total serum bilirubin was 1 to 5 in 13.30% patients, 5-9 in 70% patients, 10-14 in 10% patients, ≥ 15 in 6.70%. In normal group all the patients had bilirubin < 1 which is within normal limits.

TABLE – 5 – Relation Of Initial Total Serum Bilirubin And Maternal Deaths In Jaundice Group

| TOTAL SERUM BILIRUBIN | DEATH |
|-----------------------|-----------------|
| 1 to 5 | 1 (16.66%) |
| 5 to 9 | 1 (16.66%) |
| 10 to 14 | 3 (50%) |
| ≥ 15 | 1 (16.66%) |
| TOTAL | 6 (100%) |

GRAPH – 5 – Relation Of Initial Total Serum Bilirubin And Maternal Deaths In Jaundice Group

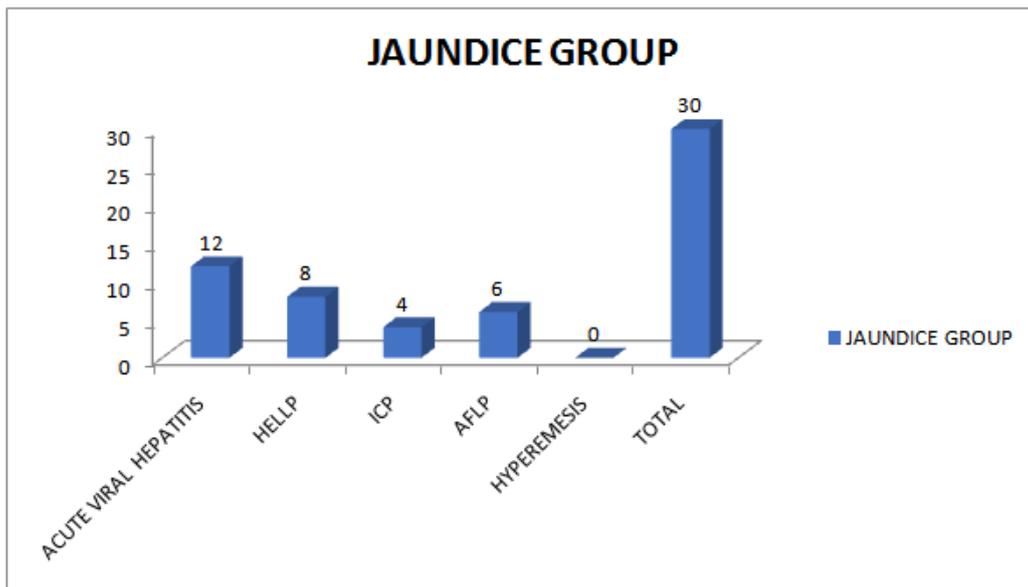


In jaundice group maternal mortality was 16.66% in TSB 1 to 5mg/dL, 16.66% in TSB 5-9 md/dL, 50% in TSB 10-14 md/dL, 16.66% in TSB ≥ 15mg/dL.

TABLE – 6 – Based On Etiology Of Jaundice In Jaundice Group

| ETIOLOGY OF JAUNDICE | JAUNDICE GROUP |
|-----------------------|------------------|
| ACUTE VIRAL HEPATITIS | 12 (40%) |
| HELLP | 8 (26.7%) |
| ICP | 4 (13.3%) |
| AFLP | 6 (20%) |
| HYPEREMESIS | 0 (0%) |
| TOTAL | 30 (100%) |

GRAPH – 6 – BASED ON ETIOLOGY OF JAUNDICE IN JAUNDICE GROUP



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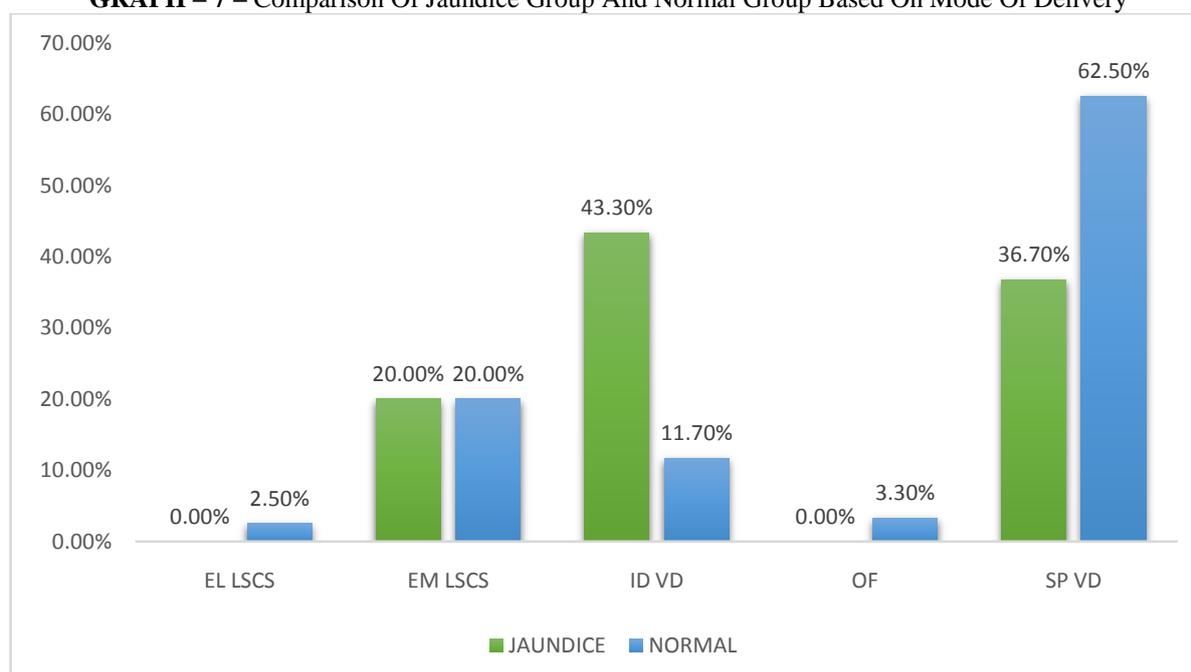
In jaundice group, cause of jaundice due to acute viral hepatitis was seen in 12(40%) patients, HELLP was seen in 8 (26.7%) patients, ICP was seen in 4 (13.3%) patients, AFLP was seen in 6(20%) patients, Hyperemesis was seen in 0 patients.

TABLE –7 – Comparison Of Jaundice Group And Normal Group Based On Mode Of Delivery

| MODE OF DELIVERY | GROUP | | TOTAL |
|------------------------------|------------|------------|------------|
| | JAUNDICE | NORMAL | |
| EL LSCS | 0 (0%) | 3 (2.5%) | 3 (2%) |
| EM LSCS | 6 (20%) | 24 (20%) | 30 (20%) |
| Induce Vaginal Delivery | 13 (43.3%) | 14 (11.7%) | 27 (18%) |
| Outlet Forceps | 0 (0%) | 4 (3.3%) | 4 (2.7%) |
| Spontaneous Vaginal Delivery | 11 (36.7%) | 75 (62.5%) | 86 (57.3%) |
| Total | 30 (100%) | 120 (100%) | 150 (100%) |

CHI SQUARE = 17.914, P VALUE = 0.001 (S)

GRAPH – 7 – Comparison Of Jaundice Group And Normal Group Based On Mode Of Delivery



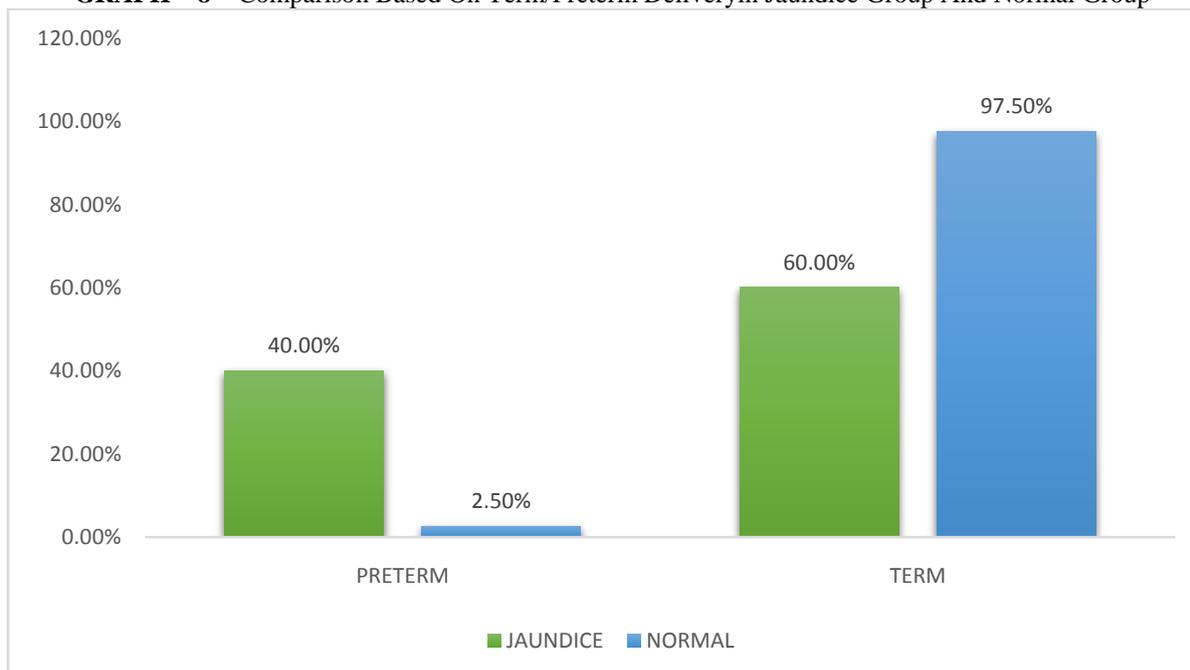
Delivery by LSCS was 20% in jaundice group and 22.50% in normal group. Vaginal delivery was 80% in jaundice group and 77.50% in normal group.

TABLE – 8 – Comparison Based On Term/Preterm Delivery In Jaundice Group And Normal Group

| TERM/PRETERM | GROUP | | TOTAL |
|--------------|-----------|-------------|------------|
| | JAUNDICE | NORMAL | |
| PRE TERM | 12 (40%) | 3 (2.5%) | 15 (10%) |
| TERM | 18 (60%) | 117 (97.5%) | 135 (90%) |
| TOTAL | 30 (100%) | 120 (100%) | 150 (100%) |

CHI SQUARE = 37.50, P VALUE = 0.001 (S)

GRAPH – 8 – Comparison Based On Term/Preterm Delivery in Jaundice Group And Normal Group



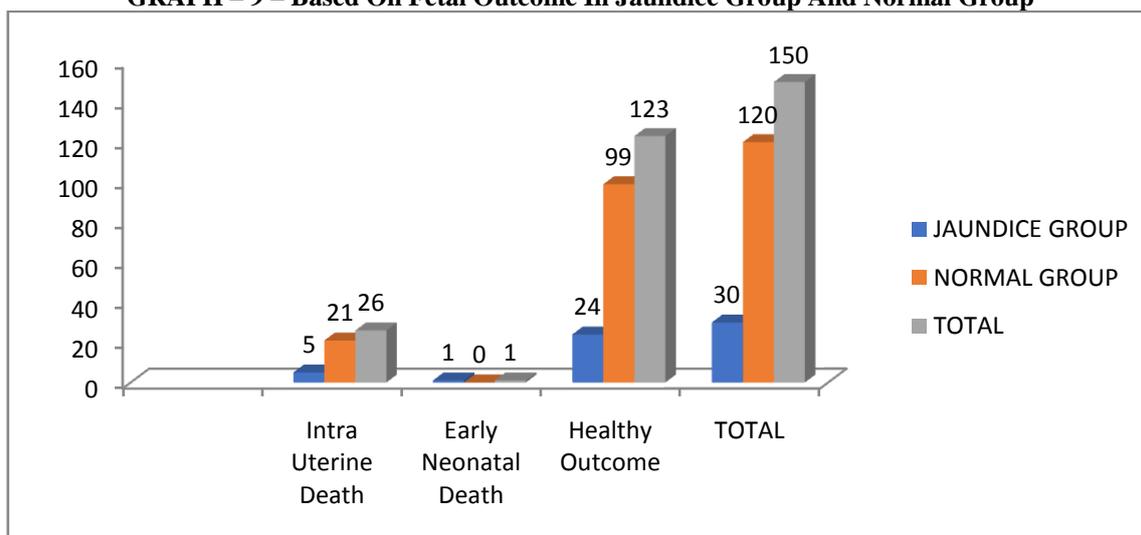
Preterm deliveries in women with jaundice group 40% were and in normal group were 2.50% which is statistically significant.

TABLE – 9 – Based On Fetal Outcome In Jaundice Group And Normal Group

| FETAL OUTCOME | GROUP | | TOTAL |
|----------------------|-----------|------------|-------------|
| | JAUNDICE | NORMAL | |
| Intra Uterine Death | 5 (16.7%) | 21 (17.5%) | 26 (17.3%) |
| Early Neonatal Death | 1 (3.3%) | 0 (0%) | 1 (0.7%) |
| Healthy Outcome | 24 (80%) | 99 (82.5%) | 123 (82.0%) |
| TOTAL | 30 (100%) | 120 (100%) | 150 (100%) |

CHI SQUARE = 4.028, P VALUE = 0.133 (NS)

GRAPH – 9 – Based On Fetal Outcome In Jaundice Group And Normal Group



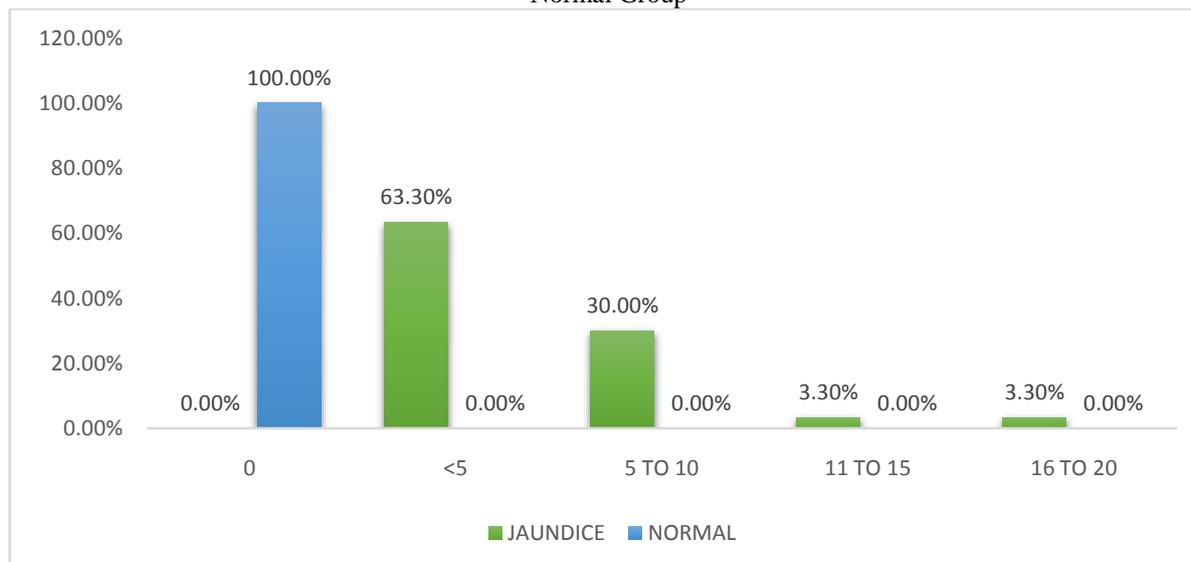
IUD were 16.70% in jaundice group and 17.50% in normal group. Early neonatal deaths were 3.30% in jaundice group and 0% in normal group which is not significant statistically.

TABLE – 10 – Based On Number Of Units Of Blood And Blood Products Transfused In Jaundice Group And Normal Group

| UNITS OF BLOOD AND BLOOD PRODUCTS | GROUP | | TOTAL |
|-----------------------------------|------------|------------|------------|
| | JAUNDICE | NORMAL | |
| 0 | 0 (0%) | 120 (100%) | 120 (80%) |
| < 5 | 19 (63.3%) | 0 (0%) | 19 (12.7%) |
| 5 to 10 | 9 (30%) | 0 (0%) | 9 (6%) |
| 11 to 15 | 1 (3.3%) | 0 (0%) | 1 (0.7%) |
| 16 to 20 | 1 (3.3%) | 0 (0%) | 1 (0.7%) |
| TOTAL | 30 (100%) | 120 (100%) | 150 (100%) |

CHI SQUARE = 150.0, P VALUE = 0.001 (S)

GRAPH – 10 – Based On Number Of Units Of Blood And Blood Products Transfused In Jaundice Group And Normal Group

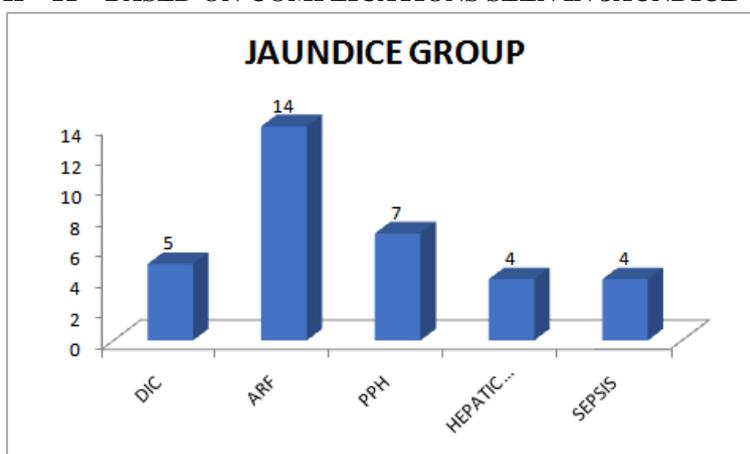


In women with jaundice 63.30% received <5 units, 30% received 5-10 units transfusion, 3.30% received 11-15 units transfusion, 3.30% received >15 transfusions. In normal group there were no blood or blood products transfusion.

TABLE – 11– Based On Complications Seen In Jaundice Group

| COMPLICATIONS | JAUNDICE GROUP |
|------------------------|----------------|
| DIC | 5 (16.7%) |
| ARF | 14 (46.7%) |
| PPH | 7 (23.3%) |
| HEPATIC ENCEPHALOPATHY | 4 (13.3%) |
| SEPSIS | 4 (13.3%) |

GRAPH – 11 – BASED ON COMPLICATIONS SEEN IN JAUNDICE GROUP



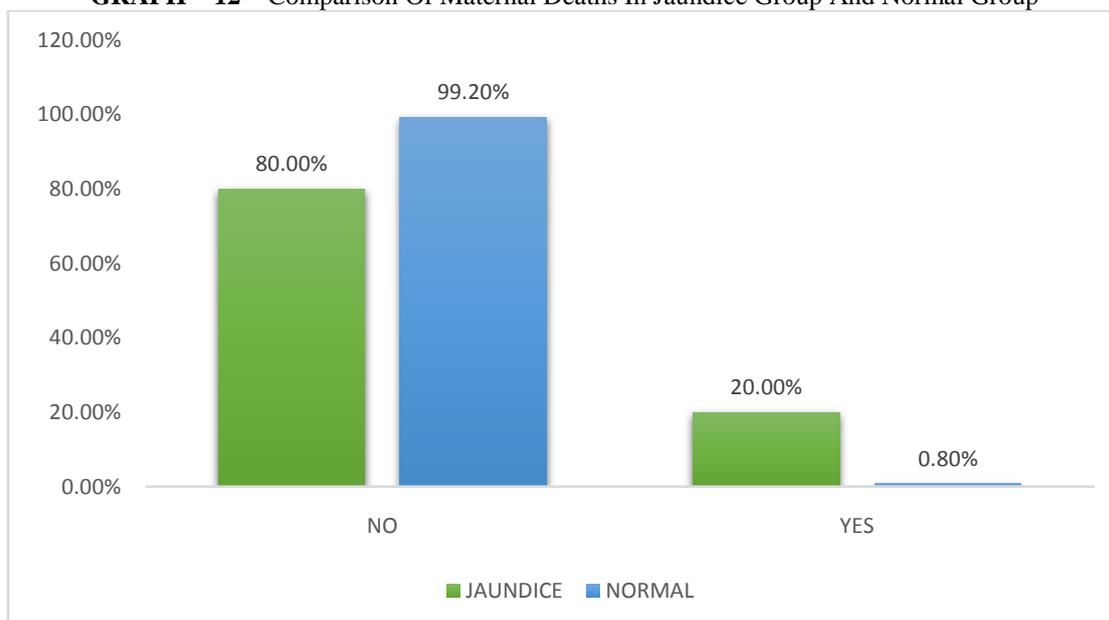
In women with jaundice DIC was seen in 16.7% patients, ARF was seen in 46.7% patients, PPH was seen in 23.3% patients, Hepatic Encephalopathy was seen in 13.3% patients and sepsis was seen in 13.3%. None of these complications were recorded in normal group of this present study. Since multiple complications were seen in single patient total number of patients with complications in jaundice group will be more than 30.

TABLE – 12 – Comparison Of Maternal Deaths In Jaundice Group And Normal Group

| MATERNAL DEATH | GROUP | | TOTAL |
|----------------|-----------|-------------|-------------|
| | JAUNDICE | NORMAL | |
| NO | 24 (80%) | 119 (99.2%) | 143 (95.3%) |
| YES | 6 (20%) | 1 (0.8%) | 7 (4.7%) |
| TOTAL | 30 (100%) | 120 (100%) | 150 (100%) |

CHI SQUARE = 19.818, P VALUE = 0.001 (S)

GRAPH – 12 – Comparison Of Maternal Deaths In Jaundice Group And Normal Group



There were 6 deaths (20%) in jaundice group and 1 death (0.80%) in normal group.

VI. Discussion

In this study the age distribution was majority between 21-25 years, in jaundice group women between 21-25 years were 36.7%, in normal group women between 21-25 years were 47.5%. Mean age being 24.5 years. In study conducted by Sharma S et al² women between age group 21-25 years were 66.66%.

In jaundice group 6.7% were un-booked and 93.3% were booked cases. In normal group 54.2% were un-booked and 45.8% were booked cases. Majority were in the category of un-booked in the present study. In study conducted by Sharma S et al² unbooked cases were 93.30% which is exactly similar to the present study.

Comparison of gestational age in this study showed that women who delivered at <=28weeks in jaundice group were 10% and women who delivered at > 28weeks were 90%. Majority of women were in third trimester of pregnancy. In study by krishnamoorthy J et al³ it was found that 80.39% of women were in third trimester which is in accordance with present study. Harshad et al⁴ study has stated that maximum incidence of jaundice was seen in third trimester and morbidity and mortality were also higher during third trimester.

Based on total serum bilirubin levels in jaundice group 70% were in 5-7mg/dL category which was majority. 10% was seen in 10-14mg/dL category. 6.7% was seen in >=15mg/dL category. TSB level of 1-5mg/dL was seen in 13.30% in jaundice group. In normal group 100% of patients had TSB level <1mg/dL which is within normal limits. In 100 jaundice patients studied by Jayathi Nath et al⁵, TSB levels in 35% patients were in 5-9mg/dL category. TSB levels in 21% patients were in 10-14 mg/dL category. TSB levels in 15% patients were in >=15mg/dL category and TSB levels in 29% patients were in <5mg/dL category. Results in this study were in accordance with present study.

Relation between initial TSB levels at admission and maternal mortality was also observed in present study. In jaundice group 16.66% mortality rate was observed in both TSB <5mg/dL and in TSB 5-9mg/dL levels. 50% mortality rate in TSB 10-14mg/dL. 16.66% maternal mortality rate was seen in TSB >=15 mg/dL. So present study shows that TSB levels >=10 mg/dL has higher maternal mortality rates. In study by Jayathi

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Nath et al⁵ maternal mortality was highest in TSB $\geq 15\text{mg/dL}$ which and it accounted for 46.6%. Higher the values of TSB levels at admission higher is the maternal mortality rate.

Based on etiology in jaundice group

| | |
|-----------------------|--------|
| Acute viral hepatitis | 40% |
| HELLP | 26.70% |
| ICP | 13.30% |
| AFLP | 20% |
| Hyperemesis | 0% |

It shows that most important cause of jaundice was acute viral hepatitis which was 40% in jaundice group. HELLP (26.70%), AFLP(20%), ICP(13.30%) were found to be other etiologies. In study by Sharma S et al² viral hepatitis was most common cause of jaundice and it was 46.7% in accordance with present study. In Study by Jayathi Nath et al⁵, most common cause was viral hepatitis which was 49% in accordance to present study.

Study by Krishnamoorthy J et al³ showed viral hepatitis was commonest cause of jaundice in 50.98% women. Study by Reddy MG et al¹ concluded that HELLP was most common etiology in 33.3% women which is not in accordance with present study.

Based on mode of delivery, in jaundice group LSCS was seen in 20% women Among LSCS all were EMLSCS in jaundice group. In jaundice group 80% were vaginal deliveries. In jaundice group among vaginal deliveries, 43.3% were induced vaginal deliveries and 36.70% were spontaneous vaginal deliveries. In normal group, delivery by ELLSCS WAS 2.5%, delivery by EMLSCS was 20%, Induced Vaginal deliveries were 11.7%, Spontaneous Vaginal Deliveries were 62.5%, Delivery by Outlet Forceps were 3.3%.

In study by Triptinagariaet al⁶ vaginal delivery was seen in 58% women and delivery by LSCS was seen in 28% women which is in accordance with present study.

Comparison of preterm and term deliveries showed 40% preterm deliveries in jaundice group and 2.5% preterm deliveries in normal group. Study by Krishnamoorthy J et al³ showed 43.13% preterm deliveries which is similar to the jaundice group in present study.

Fetal outcome in present study showed IUD of 16.70% in jaundice group. One early neonatal death in jaundice group which is 3.3%. In normal group IUDs were 17.50%. In study by Jayathi Nath et al⁵, 10% were IUD and 6.1% were early neonatal deaths which is in accordance with present study.

In jaundice group 19 patients received < 5 units of blood and blood products transfusion which was 63.3%. 9 patients i.e., 30% received 5-10 units of blood and blood products transfusion. 1 patient (3.30%) received 12 units of blood and blood products transfusion. 1 patient (3.30%) received 16 units of blood and blood products transfusion. In normal group there were no transfusions. All the 30 jaundice group patients received blood transfusions of various components to maintain their vitals hemodynamically stable. This points out the morbidity of jaundice in pregnancy. In study by Choudary N et al⁷, 25.86% received blood and blood products transfusion. In Sharma S et al² study out of 30 patients 18 patients i.e., 60% received transfusions. Maternal complications seen in jaundice group in present study were

| | |
|------------------------|--------|
| DIC | 16.70% |
| ARF | 46.70% |
| PPH | 23.30% |
| HEPATIC ENCEPHALOPATHY | 13.30% |
| SEPSIS | 13.30% |

In present study most, common complication was acute renal failure followed by PPH, DIC, sepsis and hepatic encephalopathy. In study by Jayathi Nath et al⁵ hepatic encephalopathy was most common complication in 17% patients, DIC was seen in 14% patients, sepsis was seen in 7% patients, ARF was seen only in 5% patients. Study by TriptiNagariaet al⁶ showed hepatic encephalopathy in 26.73% patients, DIC in 21.88% patients, ARF in 19.45% patients, PPH in 4.8% patients.

Kondareddy T et al⁸ study showed DIC in 20% patients, ARF in 13.33% patients, hepatic encephalopathy in 13.33% patients, PPH in 13.33% patients. Study by Choudary N et al⁷ showed that most common complication was PPH (36.41%) followed by DIC (22.41%), ARF (22.41%) and hepatic encephalopathy (20.67%).

In present study maternal deaths in jaundice group were 6 which is 20% and in normal group there was only 1 death which is 0.8%. Maternal mortality in jaundice group was found to be 20% in present study. Maternal mortality rates in other studies were

| STUDY | YEAR | MATERNAL MORTALITY % |
|--|------|----------------------|
| Kamalajayaram and Rama devi ⁹ | 1988 | 12.4 |
| Roychowdaryet al ¹⁰ | 1990 | 13.37 |
| Bera and Sengupta ¹¹ | 1992 | 19.9 |

| | | |
|---------------------------------|-----------|-------|
| Sapre and joshi ¹² | 1999 | 04.99 |
| Rao and Rudra ¹³ | 2001 | 15.8 |
| Trivedi ¹⁴ | 2003 | 29.3 |
| Tripti N et al ⁶ | 2003 | 14.4 |
| Reddy GM et al ¹ | 2013 | 16.6 |
| Kondareddy T et al ⁸ | 2015 | 20 |
| Present study | 2016-2017 | 20 |

Many of the patients when brought to the hospital are already in moribund condition and often, do not respond to treatment. So maternal mortality is high in jaundice complicating pregnancy.

VII. Summary

According to present study maximum number of patients were in the age group of 21-25 years in both groups. In jaundice group booked cases were 6.70% and un-booked cases were 93.3%. In normal group booked cases were 45.80% and un-booked cases were 54.20%.

In jaundice group ≤ 28 weeks gestation were 10%, > 28 weeks gestation age were 90%. In normal group ≤ 28 weeks gestation were 0.8%, > 28 weeks gestation were 99.20%.

In jaundice group TSB levels were 1 - 5mg/dL in 13.30% women, 5-9 mg/dL in 70% women, 10-14mg/dL in 10% women, ≥ 15 mg/dL in 6.7% women. TSB levels were within normal limits in normal group.

In jaundice group relation between TSB levels and maternal mortality was studied. Mortality rate in 1 - 5mg/dl was 16.66%, in 5-9 mg/dL was 16.66%, in 10-14 mg/dL it was 50% and in ≥ 15 mg/dL it was 16.66%.

In jaundice group etiology of jaundice was found to be 40% due to acute viral hepatitis, 26.70% due to HELLP, 20% due to AFLP, 13.3% due to ICP.

In jaundice group delivery by LSCS was 20% and all were EMLSCS, delivery by vaginal route were 80%. Among vaginal delivery 43.3% were induced vaginal delivery, 36.70% were spontaneous vaginal delivery. In normal group delivery by LSCS was 22.50% (EMLSCS were 20% ELLSCS were 2.50%), delivery by vaginal route were 77.50% (SPVD were 62.5%, Induced Vaginal Delivery were 11.7%, Outlet Forceps were 2.7%).

In jaundice group birth weight ≤ 2.5 kgs were 56.70%. In normal group it was 37.50%.

In jaundice group 40% were preterm deliveries. In normal group it was 2.50%.

In jaundice group fetal outcome was IUD in 16.7%, early neonatal death in 3.3%, healthy fetal outcome in 80%. In normal group IUD was 17.50%, healthy fetal outcome was 82.50%

In jaundice group based on number of units of blood and blood products transfusion < 5 units in 63.3%, 5-10 units in 30%, 11-15 units in 3.30%, 16-20 units in 3.30%. In normal group there were no transfusions.

In jaundice group complications observed were ARF (46.7%), PPH (23.30%), DIC (16.70%), hepatic encephalopathy (13.3%), sepsis (13.3%)

In jaundice group there were 6 maternal deaths which is 20%. In normal group there was 1 maternal death which is 0.8%

VIII. Conclusion

Jaundice in pregnancy results in very high maternal and perinatal morbidity and mortality. Acute viral hepatitis was most common cause of jaundice in pregnancy. Total serum bilirubin level ≥ 10 mg/dL at admission was associated with higher maternal mortality rates. Acute renal failure was most common complication of jaundice in pregnancy. Jaundice in pregnancy requires blood and blood products transfusion which adds to maternal morbidity.

Majority were term gestation pregnancies and induced vaginal deliveries. Jaundice in pregnancy should be managed as a team with collaboration of obstetrics, internal medicine, gastroenterology, anaesthesia and critical care so that early diagnosis and aggressive management can prevent and reduce fetomaternal morbidity and mortality.

Generating public awareness about various routes of transmission of different 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.

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