



STUDY OF HEPATOBILIARY DISEASES IN PREGNANCY

General Medicine

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ABSTRACT

Background: Hepatobiliary diseases complicate approximately 3% of pregnancies and can range from mild enzyme elevation to life-threatening liver failure. Their timely recognition is crucial, as maternal and fetal morbidity and mortality significantly increase with delayed diagnosis and inadequate management. **Objectives:** To study the clinical profile, etiological spectrum, laboratory abnormalities, complications, and outcomes of hepatobiliary diseases in pregnancy among patients admitted to the medical wards and intensive care unit of a tertiary hospital. **Methodology:** An observational study was conducted over 18 months on 102 pregnant women with hepatic dysfunction admitted to a tertiary care hospital in western India. Inclusion criteria included elevated bilirubin (>1.0 mg/dL), SGOT (>40 U/L), and SGPT (>40 U/L). Detailed clinical history, examination, and laboratory parameters were recorded. Data were analyzed using SPSS version 16 with descriptive statistics, t-tests, Wilcoxon matched-pair tests, and odds ratio for significance assessment. **Results:** The majority of patients were aged 25–29 years (55.8%), primigravida (68%), and in the third trimester (71.6%). Hepatitis E was the leading etiology (35.3%), followed by HELLP syndrome and PIH (10.8% each). The most common presenting symptom was yellowish discoloration of sclera/urine (70.5%), with icterus being the most frequent sign (78.4%). Mean bilirubin, SGOT, and SGPT levels were significantly elevated in viral hepatitis, especially hepatitis B and E. Complications included coagulopathy (52.9%) and sepsis (50%), while DIC, though less frequent (8.8%), carried high mortality. The overall mortality was 13.7%, with hepatitis E accounting for the highest number of deaths. Survivors either delivered during hospital stay (42.2%) or were discharged with ongoing pregnancy (43.1%). Rising bilirubin predicted poor outcome, whereas decreasing trends correlated with survival. **Conclusion:** Hepatitis E predominates among hepatobiliary diseases in pregnancy, with significant maternal morbidity and mortality. Early recognition, regular monitoring of liver function, and timely intervention remain critical for improving maternal and fetal outcomes in resource-limited settings.

KEYWORDS

Hepatobiliary Diseases, Pregnancy, Hepatitis E, Liver Dysfunction, Maternal Mortality

INTRODUCTION

Liver disease during pregnancy is although rare, but it can complicate approximately 3% of all pregnancies¹. During a normal pregnancy in liver function test alkaline phosphatase activity increases due to added placental secretion. The aminotransferase concentrations (alanine and aspartate), bilirubin, and gamma-glutamyl transpeptidase (GGT) and prothrombin time all remain normal throughout pregnancy. Their increase in pregnancy is always pathological, and should be further investigated. Liver diseases in pregnancy can be categorized according to trimester of occurrence or for easy description².

Some liver diseases are specific to pregnancy (e.g. intrahepatic cholestasis of pregnancy and acute fatty liver of pregnancy) and some are multisystem diseases with hepatic manifestations (e.g. Preeclampsia). Pregnancy related physiologic changes may worsen the severity of, or predispose to hepatobiliary diseases that may also occur in non-pregnant women. e.g.–viral hepatitis, thrombotic diseases (Such as Budd Chiari syndrome) and cholelithiasis. Some diseases are not related to pregnancy but can initially present during pregnancy (e.g. acute viral hepatitis)³.

If we see the spectrum of liver disease in pregnancy, in mild form there is subtle increase in liver enzymes whereas in the severe form, there might be presence of liver failure affecting the entire system or maternal mortality and morbidity. Not only does it complicate mother's life but also poses burden of life of fetus to growth restriction. Termination sometimes is the only answer to save life of mother but sometimes early detection of diseases, preventive measures and available active treatment is helpful for both of the life⁴. Extreme vigilance in recognizing the physical and laboratory abnormalities in pregnancy is required for an accurate diagnosis. This only can lead to a timely intervention and successful outcome⁵.

Liver disease in pregnancy may manifest as a benign disease with abnormal elevation of liver enzyme levels with essentially a good outcome, or it can manifest as a serious entity affecting liver function and resulting in liver failure and risk of death to the mother and her foetus⁶. No clinical markers are as accurate as to predict the course of a pregnancy and the pathophysiologic mechanisms still remain inadequately understood, but knowledge and management of the liver disease present before pregnancy and meticulous pre-pregnancy and prenatal care are essential. The present research was conducted to study the clinical profile, etiologies course of the disease and outcome

of pregnant patients with liver disease in medical wards and intensive care unit.

MATERIALS AND METHODS

A prospective observational study was conducted for 18 months on 102 pregnant patients with hepatic involvement admitted to medical ward and MICU of a tertiary care referral Hospital in western India. Pregnant patients with T bilirubin>1.00mg% with Direct bilirubin > 0.3 mg %, Increased SGOT(AST)>40U/L and Increased SGPT(ALT) >40 U/L were included. Written informed consent was taken before start of the study. Patients who refuse to consent and with congenital hyperbilirubinemia and surgical jaundice were excluded.

Estimation of liver enzymes was expected to be done at least every 3rd day in the first week of illness and thereafter every fifth day. However, due to the differing days of admission the median values during indoor stay have been included in our study. The definition of the diseases and the pathological findings and terms were according to those mentioned in our review of literature. We included eclampsia and preeclampsia together under the term PIH-PE/E.

All the data collected was tabulated and graphical presentations were made wherever necessary. Data was analysed using SPSS software Version 16. The data was analysed using mean, standard deviation. The tests of significance required for our study were paired t – test, Wilcoxon matched paired test and odds ratio.

After obtaining written and informed consent from patients/patients relatives who fulfil inclusion and exclusion criteria, patients were recruited over the period of 18 months. Necessary history and clinical examination findings were entered in case record form. All the investigations and biochemical parameters, various complications and outcomes were entered in the case record forms.

RESULTS

A prospective observational study was undertaken to study the clinical profile of pregnant patients with liver diseases, their etiologies, other organ involvements and complications and its outcomes in the mother. A total of 102 patients were studied after institutional ethics committee approval and written informed consents of the patients.

Demographic Profile of the Study Population

The maximum number (n=57, 55.8%) of patients were in the age group

of 25-29yrs, followed by 20-24yrs (n=24, 23.5%), 30-35yrs age group having 19.6% (n=20) and only one patient more than 36yrs age group. The age range was from 21yrs to 36 yrs and a mean of 26.82±3.20 yrs. The study population included 69 primigravida (68%) and 33 multigravida patients (32%).

Table 1. Demographic Profile of the Study Population:

Demographic Characteristics		Number of Cases	Percentage of Cases
Age groups (in years)	20-24	24	23.5%
	25-29	57	55.8%
	30-35	20	19.6%
	>35	1	0.9%
Gravida status of the Patients	Primi-gravida	69	67.6%
	Mutli-gravida	33	32.4%
Trimester	First	5	4.9%
	Second	24	23.5%
	Third	73	71.6%
Total(N)		102	100%

Table 2. Distribution of Study Population According to Etiology, Signs and Symptoms:

Etiology, Signs and Symptoms		Fre-quency	Percent	
Etiology	Hepatitis E	36	35.29%	
	HELLP	11	10.78%	
	PIH (pre-eclampsia/eclampsia)	11	10.78%	
	Intrahepatic cholestasis of pregnancy	10	9.80%	
	Hepatitis A	7	6.86%	
	Dengue with hepatic involvement	6	5.88%	
	AKT induced hepatitis	5	4.90%	
	Autoimmune hepatitis	4	3.92%	
	Hepatitis B	3	2.94%	
	Undifferentiated AFI with hepatic involvement	3	2.94%	
	Acute Fatty Liver of Pregnancy	2	1.96%	
	Leptospirosis with hepatic involve	2	1.96%	
	Undiagnosed hepatitis	2	1.96%	
Symptoms	Yellow sclera / Urine	72	70.48%	
	Abdominal pain	42	41.17%	
	Fever	36	35.29%	
	Vomiting	28	27.45%	
	Altered sensorium	16	15.6%	
	Bleeding	12	11.6%	
	Diarrhoea	9	8.82%	
	Pruritus	7	6.86%	
	Headache	6	5.88%	
	Convulsion	3	2.9%	
	Abdominal distension not matching gestational age	2	1.96%	
	Hematemesis	1	0.9%	
	Malaena	3	2.9%	
	Hematuria	5	4.9%	
	Per vaginal bleeding	3	2.9%	
	Signs	Icterus	80	78.43%
		Pedal oedema	43	42.2%
Pallor		31	30.4%	
Hepatomegaly		5	4.9%	
Splenomegaly		2	1.96%	
Miscellaneous		6	5.8%	

Miscellaneous – Lymphadenopathy, tongue bite, ascites.

Distribution of Study Population According to Etiology, Symptoms and Signs (N=102)

In the present study, most common etiology was Hepatitis E in 35.29% patients followed by HELLP and PIH (pre-eclampsia/eclampsia) in 10.78% patients each. Intrahepatic cholestasis of pregnancy was observed in 9.80% and Hepatitis A in 6.86% patients. Other etiologies were Dengue with hepatic involvement (5.88%), AKT induced hepatitis (4.90%) and Autoimmune hepatitis (3.92%).

Percentage of patients with yellowish discoloration of sclera and urine was the highest (70.48%, n=72) and thus the most common symptom at presentation of patients in our study followed by abdominal pain seen in 41.17% of patients (n=42) and fever present in 35.29% patients (n=36).

Abdominal pain was either epigastric (n=15, 14.7%) or right hypochondriac pain (n=27, 26.47%) Pruritus was seen only in intrahepatic cholestasis of pregnancy. Bleeding was seen in 12 patients and manifested most commonly as hematuria (n=5, 4.9%) and least commonly as hematemesis (n=1, 0.9%). The least common symptom was abdominal distension not matching gestational age present in 1.96% (n=2).

Most common sign was icterus, present in maximum number (n=80, 78.43%) of cases followed by pedal oedema seen in 42.2% (n=43). The difference between YDS/YDU at presentation and presence of icterus on examination was 7.95% (8 patients). These patients were notified of the presence of icterus only on examination in the hospital.

Lymphadenopathy was present in 2 patients with Lymph node tuberculosis. Ascites was present in 2 patients of AIH. Tongue bite was seen in 2 patients. Clubbing and cyanosis were essentially absent in all.

Table 3. Means of Various Liver Function Tests.

Variables	First value (Mean± SD)	Last value (Mean± SD)	P value
Total Bilirubin(mg/dL)	7.86±5.6	2.93±3.5\$	P<0.05
Direct Bilirubin(mg/dL)	4.97±4.1	1.47±2.07\$	P<0.05
SGOT(U/L)	498.31±427.20	54±43.32\$	P<0.05
SGPT(U/L)	675.9±677.07	91.33±146.18\$	P<0.05
Alkaline Phosphatase (U/L)	254.17±103.37	175.15±60.87\$	P<0.05
PT-INR	1.47±1.17	1.21±0.69\$	P<0.05

\$= Statistically significant v/s first sample using Wilcoxon Matched Pair Test; first value- value on day of admission; last value – value on last day in the study at endpoint.

The mean total bilirubin level on day of admission was 7.86±5.6mg/dL and the mean of the last values in the study was 2.93±3.5mg/dL. The decrease in the mean total bilirubin levels was statistically significant. The difference between the means of the first (4.97±4.1 mg/dL) and the last values (1.47±2.07 mg/dL) were statistically significant for direct bilirubin as well. The decrease in the mean values of SGOT and SGPT were also statistically significant.

Table 4. Mean Liver Function Test Levels in Women for Various Diseases:

Etiology	Total Bilirubin (mg/dL)	Direct Bilirubin (mg/dL)	SGOT (IU/L)	SGPT (IU/L)	ALP (IU/L)	LDH (IU/L)
Hepatitis B	14.06	12.13	1952	2193	257	582
Undiagnosed	10.9	7.75	413	367	397	509
Hepatitis E	8.13 ± 4.1	5.95 ± 3.4	727 ± 445	943 ± 552	209 ± 78	396 ± 108
AKT-induced hepatitis	8.28	5.94	444	695	157.9	416
Hepatitis A	5.3 ± 2.1	4 ± 2	497 ± 204	646 ± 268	241 ± 102	412 ± 156
HELLP	5.2 ± 4.0	2.7 ± 3.4	613 ± 514	780 ± 875	265± 63	2310± 1305
AIH	4.5	3.1	343	342	212	2084
Leptospirosis	3.55	2.85	451	490	191	648
ICP	2.8 ± 1.1	1.98 ± 1.04	172 ± 151	179 ± 169	321 ± 123	322 ± 174
AFLP	2.34	1.08	270	305	193	294
PIH-PE/E	1.4 ± 1.6	0.5 ± 0.6	124 ± 109	122 ± 86	187 ± 129	1322 ± 1549
Dengue	0.5	0.2	188	206	159	447
U-AFI-hep	NICT	NICT	121	155	139	235

The mean total bilirubin was highest in patients of hepatitis B (14.06 mg/dL) followed by hepatitis E (8.13±4.1 mg/dL), AKT induced hepatitis (8.28mg/dL), hepatitis A (5.3±2.1 mg/dL) and HELLP (5.2±4.0 mg/dL). Lowest mean bilirubin was seen in dengue (0.5 mg/dL).

The mean direct bilirubin was highest in in patients of hepatitis B (12.13 mg/dL) followed by hepatitis E (5.95±3.4mg/dL), AKT induced hepatitis (5.94mg/dL), hepatitis A (4±2 mg/dL) and AIH (3.1 mg/dL). Lowest mean bilirubin was seen in dengue (0.2 mg/dL).

The mean SGOT was highest in Hepatitis B (1952 IU/L) followed by

Hepatitis E (727 IU/L), HELLP (613 IU/L) and Hepatitis A (497 IU/L). The least was seen in undifferentiated acute febrile illness with hepatic involvement (121 IU/L).

The mean SGPT was highest in Hepatitis B (2193 IU/L) followed by Hepatitis E (943 IU/L), HELLP (780 IU/L) and Hepatitis A (646 IU/L). The least was seen in undifferentiated acute febrile illness with hepatic involvement (235 IU/L).

The mean serum LDH was highest in HELLP (2310 IU/L), followed by auto – immune hepatitis (2084IU/L) and PIH-preeclampsia/eclampsia (1322 IU/L). The least was seen in undifferentiated acute febrile illness with hepatic involvement (155 IU/L). The mean serum ALP levels were highest in Undiagnosed hepatitis (397 IU/L) followed by ICP (321 IU/L). The lowest mean levels were seen in undifferentiated acute febrile illness with hepatic involvement (139 IU/L). In our study an observation about the trends of the bilirubin levels was made and it was seen that a few patients in the viral hepatitis group had an initial increase in the bilirubin levels followed by a decrease.

Table 5. Bilirubin Trends in Patients of Viral Hepatitis (A, B, E) (N=46)

	Number	Death	Survived	Mean increase
Patients with rise followed by fall	12	2	10	Total bilirubin – 3.6 mg/dL Direct bilirubin – 2.4 mg/dL
Patients with rise in bilirubin	5	5	0	-
Patients with decreasing bilirubin	31		31	

The patients who showed an absolute rise in bilirubin succumbed to their illness. Out of the 12 patients who showed an initial increase in bilirubin and a later decrease, 2 patients succumbed and their death was not attributed to the underlying disease. So the patients who died (N=14) showed a mean decrease in bilirubin however, patients who showed a rise in bilirubin (n=5) succumbed.

Complications in Study Population:

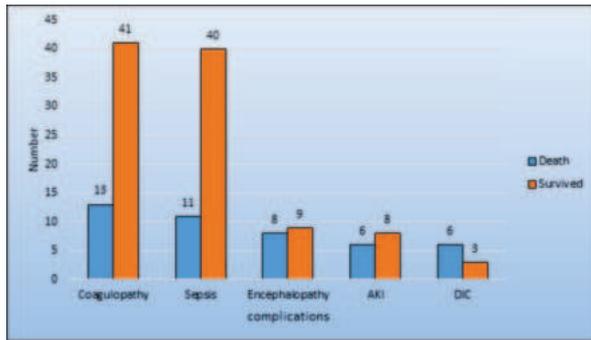


Figure 1. Bar Diagram Showing Complications in the Study Population with Outcomes of Death and Survival

Coagulopathy was present in 54 patients (52.9%), followed by sepsis in 51 patients (50%). DIC was least common seen in 9 patients (8.82%). The most common complication in the patients who succumbed and survived was coagulopathy followed by sepsis. AKI and DIC both were in low numbers in patients who died. DIC was least common in those who survived.

Out of the 9 patients of DIC, 6 patients were Hepatitis E, 1 patient was HELLP, 1 patient was AKT induced Hepatitis and 1 was ICP. Out of the 6 patients of DIC who died, 5 patients were of Hepatitis E and 1 was AKT induced hepatitis. Patient of HELLP who had DIC survived. Out of nine patients of DIC, 66.67% succumbed, showing that presence of DIC was associated with increase in mortality.

Mean Days of Admission of Patients Overall and in Comparison, with Diagnosis.

The highest number of days of indoor admission in the hospital was 45 and least was 2. The mean number of days of admission was highest for patients with undiagnosed hepatitis (20±8.5, 14 and 26 each). Though the highest number of days were seen in hepatitis E, the mean days of

indoor admission were 15.77±8.4 days with a range of 2 – 45. Both the patients with minimum and maximum days succumbed. The patients were monitored and watched for the decrease in the LFTs. The lowest mean was 5.3±0.5 days of patients of undifferentiated acute febrile illness. These patients were monitored according to fever and a declining transaminases level.

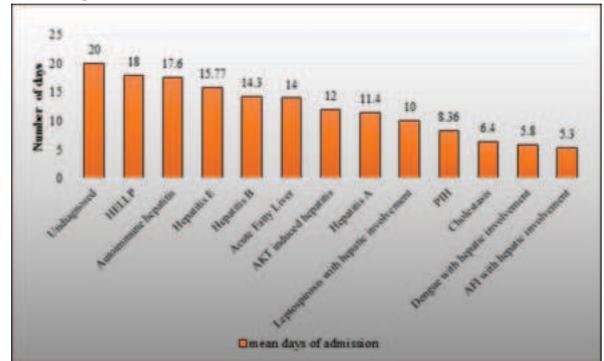


Figure 2. Bar Diagram Showing Mean Days of Admission of Patients Compared to Diagnosis

Table 6. The Outcome of Patients (Death, Delivery, Discharge) with the Etiology.

Diagnosis (n)	Death	Delivered during ward stay (survived)	Discharged with continued pregnancy (survived)
Hepatitis E (36)	5	14	17
HELLP(11)	1	10	0
PIH(11)	1	6	4
Cholestasis(10)	0	4	6
Hepatitis A(7)	2	2	3
Dengue (6)	1	1	4
AKT Induced Hepatitis (5)	1	0	4
Hepatitis B(3)	2	1	0
AIH(4)	1	2	1
AFLP(2)	0	2	0
U –AFI hepatic(3)	0	0	3
Leptospirosis (2)	0	0	2
Undiagnosed(2)	0	2	0
Total	14	44	44

We divided patients into three categories with two endpoints of death or discharge – i) Death, ii) Delivered during ward stay and discharged and iii) Discharged with continued pregnancy. The total mortality observed in the study population was 14 (13.7%). Hepatitis E had 5 deaths (4.9%), Hepatitis B and Hepatitis A each had 2 deaths (1.9% each). AKT induced hepatitis, HELLP, PIH-PE/E, Autoimmune hepatitis and Dengue each had 1 mortality (n=1, 0.9% each).

The total survivors (discharged) were 88 (86.3%) which were further classified as patients who delivered during ward stay and patients discharged with continued pregnancy. Patients who were delivered during ward stay and discharged were 43 in number (42.15%). Maximum number were having Hepatitis E (n=14, 13.7%). Patients with Leptospirosis, undifferentiated acute febrile illness with hepatic involvement and AKT induced hepatitis did not deliver during ward stay and were discharged with continuation of pregnancy. Patients who were discharged with continued pregnancy were 45 in number (43.15%). Maximum (n=17, 16.6%) patients who were discharged with continuation of pregnancy had Hepatitis E.

DISCUSSION

Age of the Population

The maximum number of patients (n=56, 55.8%) were between 25 and 30 years of age. The mean age of the population was 26 years. In Singaporean study by Wong HY et al⁷, 'Abnormal liver function tests in symptomatic pregnant patients: The local experience in Singapore', the median age of patients was 21years.⁵ In the study from Kerala by Sumangali P. K. et al.⁸ and the study from Chattisgarh, Mishra N. et al⁹, the majority of the patients were in 21- 30 age group.

Obstetric History of Study Population

The study population consisted of 68% (n=69) of primigravida and

32% (n=33) were multigravida. The maximum (n=73, 71.6%) cases were seen in the third trimester followed by the second trimester having n=24 with 23.5%. Similar findings were reported in the Singaporean study by Wong HY et al.⁷ wherein maximum patients were primigravida (47%).

In study reported by Mishra N. et al.⁹ maximum patients were primigravida (51.2%) and were in the third trimester (87.5%). In the study reported by Sumangali P. K. et al.⁸, 54% were primigravida and 93% were in their third trimester.

Distribution of Study Population According to Etiology

The most common etiology in our study was Hepatitis E (n=36, 35.29%), followed by HELLP (n=11, 10.78%) and PIH –preeclampsia/eclampsia (n=11, 10.78%). In the study conducted by Sumangali P. K. et al.⁸ in Kerala, 11 causes of deranged LFTs were seen and the most common cause was pre-eclampsia for accounting 60% of the cases followed by HELLP syndrome 13.75%. Viral hepatitis was studied as a single entity and included HEV, HAV, HBV and accounted for 10% of the cases.

In study reported in Chattisgarh by Mishra N. et al.⁹, 'Study of Abnormal Liver Function Test during Pregnancy in a Tertiary Care Hospital in Chhattisgarh', most common etiology was found to be Preeclampsia (65%, n=83) followed by HELLP syndrome (12%, n=15) followed by Hepatitis (12.5%, n=10), with least common etiology was Acute fatty liver of pregnancy (1.25%, n=1) and Intrahepatic cholestasis of pregnancy (1.25%, n=1).

Symptoms

The symptoms at presentation were yellowish discoloration of sclera and urine, abdominal pain, fever, headache, vomiting, altered sensorium, bleeding. Percentage of patients with yellowish discoloration of sclera and urine was the highest (70.48%, n=72) and thus the most common symptom at presentation of patients in our study followed by abdominal pain seen in 41.17% of patients (n=42) and fever present in 35.29% patients (n=36). In the study from Kerala by Sumangali P. K. et al.⁸, the most common presenting symptom was Pedal oedema in 25% of patients followed by yellow urine in 15% of patients, visual symptoms in 12.5% of patients. The least common symptom was fever in 2% of study population only.

Signs

Most common sign was icterus, present in maximum number (n=80, 78.43%) of cases followed by pedal oedema seen in 42.2% (n=43). The difference between yellow discoloration of sclera and urine at presentation and presence of icterus on examination was 7.95% (8 patients). In a study conducted by Solanke et al.¹⁰, 'Etiology, clinical profile, and outcome of liver disease in pregnancy with predictors of maternal mortality: A prospective study from Western India', jaundice was present in 70.4% (n=28) of patients of Hepatitis E and 20% (n=25) of patients with PIH. The most common presenting feature of patients with PIH was pedal oedema (76%, n=19), pedal oedema was seen in 17.9% (n=5) patient with Hepatitis E.

Mean Total and Direct Bilirubin

The mean total bilirubin was highest in patients of hepatitis B (14.06 mg/dL) followed by hepatitis E (8.13±4.1 mg/dL), AKT induced hepatitis (8.28mg/d), hepatitis A (5.3±2.1 mg/dL) and HELLP (5.2±4.0 mg/dL). Lowest mean bilirubin was seen in dengue (0.5 mg/dL).

In study reported by Mishra N. et al.⁹, the maximum mean total bilirubin was seen in viral hepatitis (12.75mg/dL) and the least was seen in preeclampsia (1.64 mg/dL). The mean direct bilirubin was highest in viral hepatitis again (9.5%) and the least was seen in preeclampsia (1.43mg/dL). In the Singaporean study by Wong HY et al.⁷, 'Abnormal liver function tests in symptomatic pregnant patients: The local experience in Singapore', the mean LFTs of the three most common diagnoses were compared where the mean total bilirubin was highest in patients with hyperemesis gravidarum (21.5 µmol/L – 1.25mg/dL).

Mean SGOT and SGPT

The mean SGOT was highest in Hepatitis B (1952 IU/L) followed by Hepatitis E (727 IU/L), HELLP (613 IU/L) and Hepatitis A (497 IU/L). The least was seen in undifferentiated acute febrile illness with hepatic involvement (121 IU/L). The mean SGPT was highest in Hepatitis B (2193 IU/L) followed by Hepatitis E (943 IU/L), HELLP (780 IU/L)

and Hepatitis A (646 IU/L). In study reported by Mishra N. et al.⁹, the highest mean SGOT was seen in viral hepatitis (741 IU/L) followed by AFLP (670 IU/L). The lowest was seen in ICP (100 IU/L). The highest mean SGPT was seen in viral hepatitis (814 IU/L) followed by AFLP (663 IU/L). The lowest mean SGPT was seen in miscellaneous causes which included malaria and sickle cell anaemia (92.33 IU/L).

Mean Serum ALP Levels

The mean serum ALP levels were highest in Undiagnosed hepatitis (397 IU/L) followed by ICP (321 IU/L). The lowest mean levels were seen in undifferentiated acute febrile illness with hepatic involvement (139 IU/L). In study reported by Mishra N. et al.⁹, the highest mean serum ALP levels were seen in ICP (1750 IU/L) and the lowest levels were seen in eclampsia (230 IU/L).

Mean Serum LDH

The mean serum LDH was highest in HELLP (2310 IU/L), followed by auto – immune hepatitis (2084 IU/L) and PIH-preeclampsia/eclampsia (1322 IU/L). The least was seen in undifferentiated acute febrile illness with hepatic involvement (155 IU/L). In study reported by Mishra N. et al.⁹, the highest mean serum LDH was seen in HELLP syndrome (990 IU/L), followed by AFLP (900 IU/L) and pre-eclampsia (725 IU/L). The lowest was seen in viral hepatitis (163 IU/L).

Trends of Bilirubin in Patients of Viral Hepatitis (A, B, E)

In our study an observation about the trends of the bilirubin levels was made and it was seen that a few patients in the viral hepatitis group had an initial increase in the bilirubin levels followed by a decrease. The patients who showed an absolute rise in bilirubin succumbed to their illness. Out of the 12 patients who showed an initial increase in bilirubin and a later decrease, 2 patients succumbed and their death was not attributed to the underlying disease. So, the patients who died (N=14) showed a mean decrease in bilirubin however, patients who showed a rise in bilirubin (n=5) succumbed. Thus, an increase in bilirubin was a predictor of mortality and a decrease in bilirubin was a predictor of survival in patients of viral hepatitis in our study

Mean Number of Days of Admission

The mean number of days of admission were 12.9±7.9 days. The highest number of days of indoor admission in the hospital was 45 and least was 2. The mean number of days of admission was highest for patients with undiagnosed hepatitis (20±8.5, 14 and 26 each), followed by HELLP (18±7.6) days and Autoimmune hepatitis (17.6±7.5).

In hepatitis E, the range of number of days of admission was 2 to 45. The patient with 45 days hospital stay had succumbed with cause of death mostly associated to ARDS. The patient with number of admission days of 2 days too succumbed most probably due to severity of the hepatitis. The lowest mean was 5.3±0.5 days in patients of undifferentiated acute febrile illness. Patients of ICP and Dengue also had fewer days of indoor stay. These patients were monitored according to fever and a declining transaminases level.

Mortality and Discharge Outcomes

We divided patients into three categories with two endpoints of death or discharged – i) Death, ii) Delivered during ward stay and discharged and iii) Discharged with continued pregnancy. The total mortality observed in the study population was 14 (13.7%). Hepatitis E had 5 deaths (4.9%), Hepatitis B and Hepatitis A each had 2 deaths (1.9% each). AKT induced hepatitis, HELLP, PIH-PE/E, Autoimmune hepatitis and Dengue each had 1 mortality (n=1, 0.9% each).

Patients who were discharged with continued pregnancy were 45 in number (43.15%). Maximum (n=17, 16.6%) patients who were discharged with continuation of pregnancy had hepatitis E. In study reported by Mishra N. et al.⁹, the mortality was 5% (n=4). The highest mortality was seen in HELLP 2.5% (n=2), viral hepatitis 1.25% (n=1) and AFLP 1.25% (n=1).

CONCLUSION

This prospective observational study establishes that hepatobiliary diseases in pregnancy present predominantly in the third trimester, with Hepatitis E being the most common etiology, followed by HELLP and PIH. Jaundice remains the leading symptom, and icterus the most frequent sign. Elevated bilirubin, SGOT, and SGPT levels correlate with disease severity, while a rising bilirubin trend predicts mortality. Complications such as coagulopathy and sepsis contribute significantly to adverse outcomes.

The study highlights the 13.7% maternal mortality rate, underscoring the importance of early diagnosis, vigilant monitoring, and prompt intervention. Strengthening antenatal screening for liver dysfunction, improving awareness of early symptoms, ensuring timely referral to tertiary care, and establishing standardized management protocols are essential to reduce maternal and fetal morbidity and mortality.

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