ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 06 | June - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ACUTE FATTY LIVER OF PREGNANCY AT VIMS BALLARI : RETROSPECTIVE REVIEW

Obstetrics & Gynaecology

Dr Aishwarya H
Dr Varija T
Dr Chandrashekhar T

ABSTRACT

Background: Acute Fatty Liver Of Pregnancy (AFLP) is a rare but unique disorder manifesting in the late trimester or early postpartum period. Early diagnosis and treatment is the key in management due to high mortality. **Method:** This is a retrospective case study of AFLP conducted in Department of Obstetrics and gynecology, Vijayanagara Institute of Medical Sciences, Ballari during 18 months from 1st June 2021 to 30th November 2022. All the date was taken from records. **Results:** The Swansea criteria 6 and above was used to diagnose AFLP. Majority were nulliparous (66.6%) and all of them presented in third trimester. The common symptoms at admission were jaundice (100%), followed by nausea/vomiting (83.3%) and epigastric pain (66.6%) with pruritus and encephalopathy noted in 33%. The maternal mortality rate was 50% and perinatal mortality rate was 57%. All patients received ICU care with 3 requiring mechanical ventilatory support. Inotropic support was given to 4 cases. The common adverse maternal outcome were acute kidney injury (AKI) followed by coagulopathy (DIC) and postpartum hemorrhage. **Conclusion:** High index of suspicion with early diagnosis, rapid termination of pregnancy and intensive care support with multidisciplinary approach is the need of hour in reducing the mortality associated with AFLP.

KEYWORDS

INTRODUCTION

Acute fatty liver of pregnancy is a rare disease with incidence of 1 per 7000 to 16,000 pregnancies. It mostly occurs in the third trimester of pregnancy or during late postpartum period.[1] Genetic mutation in long chain 3-hydroxyl coenzyme A dehydrogenase probably leads to abnormal fatty acids in fetal mitochondria and contributes to microvesicular fatty infiltration of liver of the mothers.[1] Due to high morbidity and mortality associated with AFLP, it is considered as obstetric emergency. Prompt delivery and supportive management of liver are key measures in the management. Limited data exists regarding the pregnancy outcomes in AFLP. The present study is aimed to determine the maternal and perinatal outcomes in AFLP at a tertiary referral hospital VIMS, Ballari.

MATERIALS AND METHODS

This retrospective case study was conducted in Department of Obstetrics and gynecology, Vijayanagara Institute of Medical Sciences, Ballari from from 1st June 2021 to 30th November 2022. We reviewed the case records of AFLP diagnosed using SWANSEA criteria during the period. Other causes of liver disorder in pregnancy, such as viral hepatitis, biliary tract disease, HELLP syndrome and cholestasis of pregnancy, were excluded. The demographic features, clinical presentation, liver function tests , renal function tests, Coagulation profile, viral markers and USG Abdomen , maternal and perinatal outcome were noted.

Objectives: To determine

a) maternal outcome in terms of mode of termination of pregnancy and mortality
b) perinatal outcome in terms of NICU admissions and mortality.

Table 1: Swansea Criteria

SWANSEA CRITERIA (6 or more of the following features)	
CLINICAL FEATURES	Vomiting
	Abdominal pain
	Polydypsia/Polyuria
	Encephalopathy
LAB FINDINGS	Elevated bilirubin (>0.8mg/dl)
	Hypoglycemia (<72mg/dl)
	WBC (>11X109)
	AST or ALT (>42U/L)
	S.Creat (>1.7mg/dl)
	Coagulopathy or PT > 14 sec
	Ammonia > 47 micromole/L
	High uric acid >340 micromole/L
USG FEATURES	Ascites or Hyperechoic liver
HISTOLOGIC FEATURES	Microvesicular Steatosis on Liver Biopsy

RESULTS

Among the 7842 deliveries over the study period, 6 women were diagnosed with AFLP using Swansea criteria. All the 6 cases were referred from peripheral centres. The most common symptom at admission was jaundice (100%) followed by nausea/vomiting (83.3%) and epigastric pain (66.6%) with pruritus and encephalopathy noted in 33%. The mean age of the patients in our study was 24 $\pm$ 3.4 years. We had 4 primigravidas and 2 multigravida. The mean gestational age at diagnosis was 34.3 $\pm$ 1.7 weeks. There was 1 twin pregnancy. The main laboratory findings are described in table 2; all of them had raised serum bilirubin and the mean value was 11.63 mg/dl. The mean prothrombin time was 18.8. The ultrasound were done in all the 6 cases. Fatty liver was diagnosed in 3 cases, ascites was found in 4 patients and bright liver was seen in 1 of these AFLP cases. Among 6 patients, 3 underwent cesarean section (50%) and 3 patients delivered vaginally (50%). Fetal sex included five males (71.4%) and two females (28.6%). Three intrauterine fetal deaths (42.8%) and 1 early neonatal death (14.2%) occurred. 2 neonates survived successfully, had one-minute Apgar score of 5 and five minute Apgar score of 7. The pregnancy and neonatal outcome is shown in table 3. The common adverse maternal outcome was acute kidney injury (AKI) followed by coagulopathy (DIC) and postpartum hemorrhage (table 4). All patients received ICU care with 3 requiring mechanical ventilatory support. Inotropic support was given to 4 cases. 74.2% of women received transfusions during delivery and postpartum. The maternal mortality was 50%.

Table 2: Laboratory findings

LABORATORY TEST	MEAN	RANGE
Hb	10.6	7.4 – 12
WBC	16.8 (X109/L)	9.8- 27.4
Platelets	186 (X109/L)	36-331
LIVER FUNCTION TESTS		
AST (U/L)	138.3	96-234
ALT (U/L)	96.8	38-210
TOTAL BILIRUBIN (mg/dl)	11.63	4.6- 21.2
DIRECT BILIRUBIN (mg/dl)	9.4	2.4- 18.6
LDH (U/L)	287.6	142- 472
RENAL FUNCTION TESTS		
UREA (mg/dl)	25.3	24-30
CREATININE (mg/dl)	1.84	1-3.2
COAGULATION PROFILE		
Prothrombin time	18.8	12-48
APTT	40.6	32-60.2

Hypoglycemia (mg/dl)	70	58-95

Table 3: Pregnancy outcome

Mode of delivery		Frequency
PTVD	2	33.3%
FTVD	1	16.6%
LSCS	3	50%
Perinatal outcome		
IUFD	3	42.8%
Low birth weight	3	42.8%
ENND	1	14.3%

Table 4: Maternal outcome

Acute Kidney injury	4	66.6%
Postpartum hemorrhage	3	50%
Disseminated intravascular coagulation	2	33.3%
Encephalopathy	2	33.3%
MODS	2	33.3%
Maternal Death	3	50%

DISCUSSION

AFLP, though rare is unique disease that occurs in third trimester of pregnancy. It is reported that being primigravida, having had multiple pregnancies, carrying a male fetus, and experiencing preeclampsia are the high-risk factors for AFLP [2]. This was noted in our study also. There are non specific symptoms like nausea, vomiting, epigastric pain and also HELLP syndrome can be confused with AFLP but presence of Swansea criteria of 6 and above, coagulopathy with clinical and laboratory features help in differentiating these two. Diagnostic imaging modalities such as computerized tomography or sonography are not considered to be very helpful in the diagnosis of AFLP.[3] The histopathological diagnosis is not mandatory for the diagnosis of AFLP in clinical practice and Swansea criteria is a good screening tool with 100% negative predictive value for micro vesicular fatty infiltration.[4]

AFLP is an obstetric emergency, hence delivery is the definitive treatment of AFLP. Induction and vaginal delivery within 24 hours have produced favorable results.[5] We suggest cesarean section based on other obstetric indications, as proposed by Sibai[5] and not on the presence of AFLP alone. There is no selective mode of termination of pregnancy. The maternal mortality rate in the present study was 50% which is higher than reported in recent literatures <10% .[6,7,8] 4 out of 6 cases had AKI and one third of women in our study had coagulopathy at the time of admission. One third of women had developed hepatic encephalopathy; in addition, multi organ dysfunction (MODS) and sepsis were responsible for the maternal deaths. Hence early diagnosis and treatment is needed. The perinatal mortality described in literature varies between 8-23% but it is 57% in our case series.[7,9,10,11] Prematurity, delayed presentation after symptom onset, coexisting preeclampsia might have contributed to high perinatal mortality as majority had occurred in-utero. In general, the perinatal outcome is better if it occurs after 34 weeks rather earlier gestational ages.

AFLP usually resolves spontaneously after delivery but close continuous monitoring after delivery is vital as severe postpartum hemorrhage and multi-organ failure occur after delivery. ICU care might be needed in severely ill patients. Rapid deterioration of clinical condition can occur. Disseminated intra-vascular coagulation may be a severe and potential fatal complication of AFLP. Correction of coagulopathy, hypoglycemia, metabolic acidosis along invasive hemodynamic monitoring and mandatory monitoring of blood sugar and coagulation tests is needed. Multi-organ failure may need assisted ventilation and dialysis.

Recurrence of AFLP in subsequent pregnancies can occur. Although the theoretical recurrence risk in subsequent pregnancies is 25% with a mother carrying a homozygous mutant or compound heterozygous fetuses, it is uncommon and only a few cases have been documented.[12] Therefore, counselling of the affected women, along with their infants who may be affected, for LCHAD deficiency should be done.

CONCLUSION

As the incidence of AFLP is rare with high mortality, high index of suspicion is needed to diagnose it. It is recommended that patients with nausea, vomiting, or epigastric pain, and persistent jaundice in the third trimester, with abnormal liver function tests should be suspected for the diagnosis of AFLP. Early diagnosis, timely referral from peripheral health care centres, prompt delivery with aggressive multidisciplinary approach can improve the clinical outcome.

REFERENCES

1. Chang L, Wang M, Liu H, Meng Q, Yu H, Wu YM, Zhu Y. Pregnancy outcomes of patients with acute fatty liver of pregnancy: a case control study. BMC Pregnancy Childbirth. 2020 May 11;20(1):282.
2. A. G. Rajasri, R. Srestha, and J. Mitchell, "Acute fatty liver of pregnancy (AFLP)—an overview," Journal of Obstetrics and Gynaecology, vol. 27, no. 3, pp. 237–240, 2007.
3. Castro MA, Fassett MJ, Reynolds TB, Shaw KJ, Goodwin TM. Reversible peripartum liver failure: a new perspective on the diagnosis, treatment, and cause of acute fatty liver of pregnancy, based on 28 consecutive cases. Am J Obstet Gynecol 1999;181:389–95
4. Knight M., et al. "A prospective national study of acute fatty liver of pregnancy in the UK". Gut 57.7 (2008): 951-956
5. Sibai BM. Imitators of severe preeclampsia. Obstet Gynecol 2007;109:956–66
6. Joueidi Y., et al. "Maternal and neonatal outcomes and prognostic factors in acute fatty liver of pregnancy". European Journal of Obstetrics and Gynecology and Reproductive Biology 252 (2020): 198-205.
7. Nelson DB., et al. "Acute fatty liver of pregnancy: clinical outcomes and expected duration of recovery". American Journal of Obstetrics and Gynecology 209.5 (2013): 456.e1-7.
8. Goel A., et al. "Pregnancy-related liver disorders". Journal of Clinical and Experimental Hepatology 4.2 (2014): 151-162.
9. Kayem G., et al. "Risk factors for progression from severe maternal morbidity to death: a national cohort study". PLoS One 6.12 (2011): e29077.
10. Shi Y., et al. "Analysis of clinical characteristics and genetic testing in patients with acute fatty liver of pregnancy: a retrospective study". BMC Pregnancy and Childbirth 21.1 (2021): 617
11. Afridi F., et al. "Acute Fatty Liver Disease of Pregnancy in the Second Trimester". Case Reports in Critical Care 2020 (2020): 6705784
12. Knox TA, Olans LB. Liver disease in pregnancy. N Engl J Med. 1996;335: 569–76