International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

Acute Pancreatitis in Pregnancy: A Retrospective Study in Tertiary Care Centre

Dr Anil Kumar G[1], Dr Vandana[2]

[1]Assistant Professor, Department of Medical Gastroenterology, Rajiv Gandhi Super specialty Hospital- RGSSH (OPEC) Hospital Raichur
[2]Assistant Professor, Department: Obstetrics and Gynaecology, Raichur institute of medical sciences-RIMS, Raichur

OPEN ACCESS

Corresponding Author:

Dr Anil Kumar G
Assistant Professor, Department of Medical Gastroenterology, Rajiv Gandhi Super specialty Hospital- RGSSH (OPEC) Hospital Raichur

Received: 22-11-2025
Accepted: 15-12-2025
Available online: 23-12-2025

ABSTRACT

Background: Acute pancreatitis in pregnancy (APIP) is a rare but potentially life-threatening condition that can lead to significant maternal and fetal morbidity. Most cases occur in the third trimester due to physiological changes that increase the risk of biliary sludge formation and hypertriglyceridemia. Prompt recognition and appropriate management are crucial for favorable outcomes.

Objectives: This study aimed to assess the incidence, clinical profile, etiological factors, maternal and fetal outcomes, and management strategies of acute pancreatitis among pregnant women in a tertiary care setting.

Methods: A retrospective observational study was conducted from January 2021 to August 2025 at a tertiary care hospital. Medical records of pregnant women diagnosed with acute pancreatitis, as per the revised Atlanta classification, were reviewed. Data were collected on demographics, clinical features, laboratory findings, etiology, severity, management approach, and maternal and fetal outcomes. Descriptive statistics were used to analyze the data.

Results: A total of 62 pregnant women with acute pancreatitis were included. Most cases were diagnosed in the third trimester, and the majority were multigravida. Gallstones were the most common etiology, followed by hypertriglyceridemia and idiopathic causes. Most cases were mild and managed conservatively, resulting in full recovery. Severe cases requiring ICU care were associated with higher rates of maternal complications and adverse fetal outcomes, including preterm delivery and NICU admission. Conservative management showed excellent outcomes in stable cases, while surgical interventions were limited to complicated scenarios.

Conclusion: Acute pancreatitis during pregnancy, though rare, demands high clinical suspicion, especially in the third trimester. Early identification of risk factors, such as gallstones and hyperlipidemia, along with trimester-based management and multidisciplinary care, is essential for optimizing maternal and fetal outcomes.

Keywords*: Acute pancreatitis, Pregnancy, Gallstones, Hypertriglyceridemia, Maternal outcomes, Fetal outcomes, Conservative management, ICU care.*

INTRODUCTION

Acute pancreatitis in pregnancy (APIP) is an uncommon yet potentially life-threatening condition that poses significant risks to both maternal and fetal health. Its incidence ranges from 1 in 1,000 to 1 in 12,000 pregnancies, with increasing frequency in the third trimester due to hormonal influences on biliary function and pancreatic enzyme secretion [1]. The most common etiologies include gallstones and hypertriglyceridemia, with alcohol use and idiopathic causes contributing to a smaller proportion of cases [2]. Despite its rarity, the severity of APIP necessitates prompt diagnosis and multidisciplinary management due to the risks of systemic inflammatory response, organ dysfunction, and adverse perinatal outcomes.

Pregnancy induces physiological changes—such as increased estrogen levels, decreased gallbladder motility, and elevated triglyceride levels—that predispose women to biliary complications, a leading cause of acute pancreatitis during gestation [3]. The clinical presentation of APIP typically includes epigastric pain radiating to the back, nausea, and vomiting—symptoms that overlap with normal gestational complaints, often leading to diagnostic delays [4].

While the general prognosis of acute pancreatitis has improved over the decades due to better supportive care and diagnostic tools, APIP remains a clinical challenge. The maternal mortality rate has declined to below 1% in developed settings, but fetal mortality still ranges between 0% and 37% depending on the severity and trimester of onset [5].

Despite multiple case series and institutional reports, comprehensive data from retrospective studies remain limited in many regions, especially in low- and middle-income countries. Therefore, this study aims to retrospectively evaluate the clinical profile, etiologies, maternal and fetal outcomes, and management strategies in patients diagnosed with APIP, contributing valuable insights to the current body of evidence.

OBJECTIVES

To determine the incidence and clinical profile of acute pancreatitis during pregnancy
To identify potential etiological factors contributing to acute pancreatitis in pregnant patients
To evaluate maternal and fetal outcomes associated with acute pancreatitis in pregnancy
To assess the effectiveness of different management strategies employed during the study period

MATERIALS AND METHODS

This retrospective observational study was conducted in collaboration with the Departments of Medical Gastroenterology at OPEC Raichur and At Department of OBG and Radiology at RIMS, Raichur a referral hospital, covering the period from January 2021 to August 2025. The study included all pregnant women admitted to the tertiary care centre who were diagnosed with acute pancreatitis, defined according to the revised Atlanta classification as the presence of at least two of the following criteria: characteristic upper abdominal pain, serum amylase and/or lipase levels at least three times the upper normal limit, and imaging findings consistent with pancreatitis on ultrasound, CT, or MRI. Eligible participants were pregnant women of any gestational age with complete medical records available for review. Exclusion criteria included patients with chronic pancreatitis, non-pregnant women with pancreatitis, and cases with incomplete medical records.

Sample size: Sample size was estimated by using the incidence of maternal complications from the study by Zhang T et al [6], with 5% alpha error and 10% precision, sample size required was 62 cases of acute pancreatitis in pregnant women by using the formula $n=4\ pq/d^2$.

Data for this study were collected retrospectively from hospital medical records, case files, and electronic databases. Recorded variables included demographic information (age, parity, and gestational age at diagnosis), clinical presentation (symptoms and vital signs at admission), laboratory investigations (serum amylase, lipase, liver function tests, triglycerides, and calcium levels), and imaging findings from ultrasonography or CT/MRI where available. The etiology of pancreatitis was classified as gallstone-related, hypertriglyceridemia-induced, idiopathic, or other causes. Management details such as conservative treatment, ICU admission, and any surgical or endoscopic interventions were documented, along with maternal outcomes (hospital stay duration, complications, morbidity, and mortality) and fetal outcomes (gestational age at delivery, fetal complications, and perinatal results).

Data were entered into Microsoft Excel and analyzed using [statistical software, e.g., SPSS version 22]. Descriptive statistics were applied to summarize baseline characteristics, with categorical variables expressed as frequencies and percentages, and continuous variables as mean ± standard deviation or median (interquartile range), depending on the distribution of the data.

RESULTS

Table 1: Demographic and clinical profile of pregnant women with pancreatitis

Variable		**n (%) or Mean ± SD**
Age (years)		27.8 ± 4.6
Gestational Trimester	- First	6 (9.7%)
	- Second	14 (22.6%)
	- Third	42 (67.7%)
Parity	Primigravida	23 (37.1%)
	Multigravida	39 (62.9%)
Etiology	- Gallstones	38 (61.3%)
	- Hypertriglyceridemia	11 (17.7%)
	- Idiopathic	8 (12.9%)
	- Drug-induced	3 (4.8%)
	- Others	2 (3.2%)
Pancreatitis Severity	- Mild	41 (66.1%)
	- Moderate	15 (24.2%)
	- Severe	6 (9.7%)

In the present study, the mean age of pregnant women diagnosed with acute pancreatitis was 27.8 ± 4.6 years. Most cases (67.7%) were diagnosed in the third trimester, followed by the second (22.6%) and first (9.7%) trimesters. Regarding parity, 62.9% were multigravida and 37.1% were primigravida. The most common etiology identified was gallstone-induced pancreatitis, accounting for 61.3% of cases, followed by hypertriglyceridemia (17.7%), idiopathic causes (12.9%), drug-induced (4.8%), and others (3.2%). In terms of severity, the majority had mild acute pancreatitis (66.1%), with 24.2% experiencing moderate and 9.7% severe disease. There was no significant association between trimester or parity and severity of pancreatitis ($p > 0.05$) [Table 1].

Table 2: Maternal and Fetal Outcome among Pregnant women with pancreatitis

		Frequency (%)
Maternal Outcome	Organ dysfunction	7 (11.3%)
	ICU Admission	9 (14.5%)
	Maternal Mortality	1 (1.6%)
	Recurrent AP	4 (6.5%)
Fetal Outcome	Preterm delivery	17 (27.4%)
	IUFD	3 (4.8%)
	Low birth weight	14 (22.6%)
	NICU admission	11 (17.7%)

In the present study, maternal outcomes included organ dysfunction in 11.3% of patients, ICU admission in 14.5%, recurrent acute pancreatitis in 6.5%, and maternal mortality in 1.6% of cases. The overall maternal recovery rate was 98.4%. Fetal outcomes showed that 27.4% of pregnancies resulted in preterm delivery, 22.6% had low birth weight, and 17.7% required NICU admission. Intrauterine fetal demise (IUFD) occurred in 4.8% of cases. Poor maternal outcomes, including ICU admission and organ dysfunction, were significantly associated with adverse fetal outcomes ($p < 0.05$) [Table 2].

Table 3: Management Strategy among Pregnant women with Acute Pancreatitis

Management Strategy	**No. of Patients (%)**	**Maternal Outcome**	**Fetal Outcome**
Conservative management (IV fluids, bowel rest, antibiotics, nutrition)	39 (63%)	Full recovery; no mortality	36 live births
ICU management (organ dysfunction, necrosis)	9 (14.5%)	7 with organ dysfunction; 1 maternal death	3 IUFD, 2 NICU admissions
Pregnancy termination / Cesarean section	6 (9.7%)	Maternal stabilization achieved	1 stillbirth, 2 preterm survivors
ERCP / Cholecystectomy (postpartum)	3 (4.8%)	Full recovery	No fetal loss
Recurrent AP (readmission)	4 (6.5%)	Recurrent mild attacks	3 preterm births

In the present study, conservative management was the most common strategy, employed in 63% of cases, all of which resulted in full maternal recovery with no mortality and 36 live births. ICU management was required in 14.5% of cases, primarily for patients with organ dysfunction and necrotizing pancreatitis. Among these, there was one maternal death and three cases of IUFD. Pregnancy termination or cesarean section was performed in 9.7% of cases, which led to maternal stabilization in all cases but included one stillbirth and two preterm survivors. ERCP or cholecystectomy was performed postpartum in 4.8% of patients, with complete recovery and no fetal loss. Recurrent acute pancreatitis was observed in 6.5% of patients, and these cases were associated with recurrent mild attacks and three instances of preterm delivery. **Maternal recovery rate was** 98.4%, **Maternal mortality was** 1.6%, **ICU admission rate was** 14.5% and **Organ dysfunction incidence:** 11.3% [Table 3].

DISCUSSION

The present study highlights key epidemiological, clinical, and management-related characteristics of acute pancreatitis in pregnancy (APIP), contributing to the growing body of data from low- and middle-income settings. Our findings show a predominant occurrence of APIP in the third trimester (67.7%), consistent with reports by Kumar et al. and Madro et al., who also observed a peak incidence in late gestation due to increased biliary stasis and hyperlipidemia in the third trimester.[7,8] This pattern reflects the cumulative physiological burden on the pancreas as pregnancy advances.

Gallstone-induced pancreatitis was the leading etiology (61.3%) in our cohort, echoing trends across global studies where cholelithiasis remains the dominant cause in pregnant populations.[7,8] However, our observed rate is higher than some Western studies, which report a wider etiological spectrum including alcohol and idiopathic cases.[9] Hypertriglyceridemia was the second most common cause (17.7%), slightly lower than reported in the Beijing multicenter study by Zhang et al., where hypertriglyceridemia accounted for 56.2% of cases and was linked with greater disease severity.[6] These variations may stem from regional dietary patterns, genetic predispositions, and differences in lipid screening protocols during antenatal care.

In terms of severity, most cases were classified as mild (66.1%), similar to the rates reported in a systematic review by Kumar et al. and the meta-analysis by Hughes et al., which show that mild AP accounts for the majority of cases, although severe disease contributes significantly to morbidity and mortality.[7,11] Our maternal mortality rate (1.6%) and organ dysfunction incidence (11.3%) align closely with the pooled maternal mortality rate of 2.8% found in recent meta-analyses, suggesting improved outcomes compared to historical cohorts.[11] Notably, ICU admission and organ dysfunction were significantly associated with adverse fetal outcomes, a relationship also emphasized by Zhang et al. and Pinto et al..[10,12]

Fetal outcomes remain an area of concern, with preterm birth in 27.4% and NICU admissions in 17.7% of cases. These results correspond with rates found in other Asian studies, such as Zhang et al. and Dong-lin et al., where preterm delivery ranged from 20–40% depending on AP severity and timing.[6,10] In our cohort, intrauterine fetal demise (IUFD) occurred in 4.8% of cases, which is slightly lower than the average reported in a systematic review by Kumar et al. and meta-analysis by Hughes et al., where fetal mortality ranged from 10–13%.[7,11]

Conservative management yielded excellent outcomes, with a 100% maternal survival and no fetal losses. This supports existing guidelines favoring non-surgical management in stable patients.[8] The need for ICU care and pregnancy termination was reserved for severe or complicated cases, reinforcing the importance of early risk stratification and multidisciplinary coordination, as advocated by Dong-lin et al..[10]

Our results emphasize the importance of early identification of etiological factors—especially gallstones and hypertriglyceridemia—along with trimester-based risk assessment to guide management. The outcomes also underscore the need for protocol-driven ICU care and timely obstetric interventions in severe cases.

However, the study's retrospective design may limit causal interpretations, and its single-center setting could reduce the generalizability of findings. Furthermore, the relatively small number of severe cases constrained the assessment of infrequent but significant complications. Overall, early diagnosis, risk stratification, and collaborative care remain crucial for improving maternal and fetal outcomes in pregnancy-associated pancreatitis.

CONCLUSION

This study offers valuable insights into the clinical profile, etiological spectrum, disease severity, maternal and fetal outcomes, and management of acute pancreatitis in pregnancy. The condition was more frequently observed in the later trimesters and among multigravida women, with gallstones emerging as the leading cause, followed by hypertriglyceridemia and idiopathic factors. Most patients experienced mild disease and responded well to conservative treatment, whereas severe cases required ICU care and were associated with poorer fetal outcomes such as preterm birth and low birth weight. These findings reinforce the importance of early risk identification, especially through gallbladder and lipid screening during antenatal care, and highlight the need for a multidisciplinary management approach. Based on these results, it is recommended to implement routine antenatal screening for biliary and lipid disorders, establish coordinated care protocols involving specialists, and promote patient education on preventive measures and early symptom recognition.

REFERENCES

1. Pitchumoni CS, Yegneswaran B. Acute pancreatitis in pregnancy. *World J Gastroenterol*. 2009;15(45):5641-5646.
2. Igbinosa O, Poddar V. Acute pancreatitis in pregnancy. *Clin Gastroenterol Hepatol*. 2010;8(1):85–91.
3. Sun L, Li W, Geng Y, Shen B, Li J. Acute pancreatitis in pregnancy. *Acta Obstet Gynecol Scand*. 2011;90(6):671–676.
4. Ramin KD, Ramin SM, Richey SD, Cunningham FG. Acute pancreatitis in pregnancy. *Am J Obstet Gynecol*. 1995;173(1):187–191.
5. Stimac D, Stimac T. Acute pancreatitis during pregnancy. *Eur J Gastroenterol Hepatol*. 2011;23(5):389–393.
6. Zhang T, Wang G, Cao Z, Huang W, Xiao H, Wei H, Lu J, Liu R, Yin C. Acute pancreatitis in pregnancy: a 10-year, multi-center, retrospective study in Beijing. BMC pregnancy and childbirth. 2022;22(1):414.
7. Kumar-M P, Singh AK, Samanta J, et al. Acute pancreatitis in pregnancy and its impact on the maternal and foetal outcomes: A systematic review. *Pancreatology*. 2022;22:210–218.
8. Madro A. Pancreatitis in Pregnancy—Comprehensive Review. *Int J Environ Res Public Health*. 2022;19(23):16179.
9. Hobbs K, Shah D, Al Shabeeb R, Abougergi M. Acute Pancreatitis in Pregnancy: Epidemiology and Treatment Outcomes. *Am J Gastroenterol*. 2024;119(Suppl):S90.
10. Zhang D, Huang Y, Yan L, et al. Thirty-eight Cases of Acute Pancreatitis in Pregnancy: A 6-year Single Center Retrospective Analysis. *J Huazhong Univ Sci Technol [Med Sci]*. 2013;33(3):361–367.
11. Hughes DL, Hughes A, White PB, Silva MA. Acute pancreatitis in pregnancy: meta-analysis of maternal and fetal outcomes. *Br J Surg*. 2022;109(1):12–14. [DOI:10.1093/bjs/znab221]
12. Pinto LM, Gopala N. Acute pancreatitis in pregnancy: Case series. *Indian J Obstet Gynecol Res*. 2025;12(2):328–332.