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Research Article

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Acute Pancreatitis During Pregnancy: Clinical Evaluation, Management and Prognosis

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Abstract

Acute pancreatitis during pregnancy is a rare but serious condition that requires prompt recognition and management to ensure favorable maternal and fetal outcomes. Acute pancreatitis during pregnancy is a rare but serious condition that requires prompt diagnosis and management. This retrospective descriptive study aims to analyze the epidemiological, clinical, paraclinical, therapeutic, and evolutionary characteristics of acute pancreatitis in pregnant women admitted to the gynecology-obstetrics department at CHU Mohammed VI, Oujda, over an eight-year period.

1. Introduction

Acute pancreatitis (AP) in pregnancy is an uncommon but potentially life-threatening condition characterized by the inflammation of the pancreas. The incidence of AP during pregnancy ranges from 1 in 1,000 to 1 in 12,000 pregnancies. It is most commonly seen in the third trimester. The etiology, clinical presentation, and management of AP in pregnant women present unique challenges due to the physiological changes of pregnancy and the need to consider both maternal and fetal well-being.

2. Materials and Methods

This study includes 12 cases of pregnant women diagnosed with acute pancreatitis from January 2016 to October 2023. Data were extracted from hospitalization records and medical files. The inclusion criterion was the availability of complete diagnostic information. Data were collected using an exploitation sheet covering epidemiological, clinical, paraclinical, therapeutic, and evolutionary data. Data analysis was performed using Microsoft Excel, with quantitative variables presented as means with ranges and qualitative variables as percentages.

3. Results

3.1 Epidemiology

- **Age:** The mean age at diagnosis was 29 years, ranging from 23 to 40 years.
- **Origin:** 92% (11 patients) were from urban areas, and 8% (1 patient) were from rural areas.
- **Socioeconomic Status:** 33% of patients had low socioeconomic status with compulsory health insurance (AMO).

3.2 Medical History

3.2.1 Personal History

- One patient had type 2 diabetes managed with insulin.
- One patient had a history of ICU admission for lithiasic acute pancreatitis during a previous pregnancy and recurrent pancreatitis during the current pregnancy.
- One patient had gestational diabetes.

3.2.2 Surgical History: One patient had a history of cholecystectomy.

3.2.3 Toxic History: None of the patients had toxicological antecedents.

3.3Gynecological - Obstetric History

- **Contraception :** 17% (2 patients) used oral contraception.
- ***Gravidity:*** 42% (5 patients) were primigravida, and 58% (7 patients) were multigravida.
- **Parity:** 50% (6 patients) were multiparous, 25% (3 patients) were primiparous, and 25% (3 patients) were nulliparous.

3.4 Current Pregnancy

- **Pregnancy Monitoring:** All patients were followed by their gynecologists (4 in the private sector, 6 in the public sector).
- **Complications:** One patient experienced an eclampsia crisis with emergency fetal extraction, and another had

diabetic ketoacidosis with hypertensive disorders, leading to emergency cesarean delivery.

3.5 Gestational Age at Diagnosis:

- Second trimester: 33% (4 patients)
- Third trimester: 50% (6 patients)
- Postpartum: 17% (2 patients)
- No cases in the first trimester.

3.6 Clinical and Paraclinical Characteristics

3.6.1 Clinical Signs

- Abdominal Pain: Present in 100% of cases.
- Vomiting: Present in 83.3% (10 patients).
- General Signs : Fever in 33% (4 patients), altered general condition in 8% (1 patient), stable hemodynamics in 75% (9 patients), and tachycardia in 25% (3 patients).

3.7 Biological Findings

- Lipase: Elevated in all patients, with a mean level of 2032 U/L.
- CRP: Elevated in all patients, with a mean level of 108.10 mg/L.
- Hepatic Panel: Hepatic cytolysis in 42% (5 patients) and biological cholestasis in 58% (7 patients).
- Lipid Profile: Hypertriglyceridemia in 33% (4 patients).

3.8 Imaging

3.8.1 Abdominal Ultrasound:

- Lithiasic gallbladder in 42% (5 patients).
- Intra-abdominal effusion in 17% (2 patients).

3.9 Severity Assessment

- **Systemic Inflammatory Response Syndrome (SIRS):**
- **SIRS = 0 in 25% (3 patients)**
- **SIRS = 1 in 42% (5 patients)**
- **SIRS > 1 in 33% (4 patients)**

4. Discussion

4.1 Overview

Acute pancreatitis (AP) during pregnancy is a rare but serious medical condition that poses significant risks to both the mother and the fetus [1]. The condition's complexity arises from the physiological changes associated with pregnancy, which can mask or mimic symptoms of AP, making diagnosis challenging [2]. This discussion delves into the multifaceted aspects of AP in pregnancy, addressing diagnostic challenges, the role of biological markers, the application of bioclinical scores, etiological factors, complications, therapeutic management, and future directions for research and clinical practice [2].

4.2 Diagnostic Challenges

Diagnosing AP in pregnant women is particularly challenging due to the overlap between symptoms of AP and common pregnancy-related complaints such as nausea, vomiting, and abdominal pain [3]. Additionally, physiological changes during pregnancy, such as increased plasma volume and elevated levels of certain enzymes, can alter laboratory test results, complicating the interpretation of diagnostic markers. Imaging studies, crucial for confirming the diagnosis, are also limited by concerns about fetal safety [3]. While ultrasound is the preferred initial imaging modality due to its safety profile, its sensitivity for detecting pancreatic abnormalities is lower compared to computed tomography (CT) (4). Magnetic resonance imaging (MRI), although more sensitive, is not routinely used due to availability and cost concerns. Therefore, a high index of suspicion and a multidisciplinary approach are essential for timely and accurate diagnosis [4].

4.3 Role of Biological Markers

Biological markers play a crucial role in diagnosing and assessing the severity of AP [5]. Serum amylase and lipase are the primary diagnostic markers for AP, with lipase being more specific due to its longer half-life and higher sensitivity [5]. However, these markers can also be elevated in other conditions, including pregnancy-related hyperemesis. C-reactive protein (CRP) and procalcitonin are valuable for assessing the severity of inflammation and the risk of infection, respectively [6]. Elevated CRP levels correlate with the severity of AP, while procalcitonin helps differentiate between sterile and infected pancreatic necrosis. However, the interpretation of these markers must consider the physiological changes in pregnancy, such as increased baseline levels of CRP [6].

Marker	Normal Range in Pregnancy	Elevated Levels Indicate
Serum Amylase	23-85 U/L	Pancreatic inflammation
Serum Lipase	0-160 U/L	Pancreatic inflammation
CRP	< 10 mg/L	Inflammation severity
Procalcitonin	< 0.5 ng/mL	Bacterial infection

Table 1: Diagnostic Markers for Acute Pancreatitis in Pregnancy

4.4 Application of Bioclinical Scores

Bioclinical scores, such as the Ranson, APACHE II, and Balthazar scores, are commonly used to predict the severity and prognosis of AP in the general population [7]. However, their application in pregnant women is limited due to physiological changes that affect the parameters used in these scores [6]. For instance, the Ranson score includes parameters such as hematocrit and calcium levels, which can be altered during pregnancy [8]. The APACHE II score, which includes multiple physiological and laboratory variables, may also be affected by pregnancy-related changes [8]. Therefore, there is a need to develop or validate bioclinical scores specifically for use in pregnant women with AP [9]. Until then, clinicians must exercise caution when using these scores and consider the broader clinical context [10].

Score	Parameters Included	Limitations in Pregnancy
Ranson	Age, WBC, glucose, LDH, AST	Altered by physiological changes
APACHE II	Multiple physiological and lab variables	Complex, may require adjustment
Balthazar	Imaging findings	Limited use due to safety concerns in imaging

Table 2: Bioclinical Scores for Assessing Severity of Acute Pancreatitis

4.5 Etiological Factors

Understanding the etiology of AP in pregnancy is crucial for effective management and prevention [11]. The primary causes of AP in pregnant women include biliary pathology, hypertriglyceridemia, hyperparathyroidism, and hypertensive disorders [11]. Biliary pathology, particularly gallstones, is the most common cause, accounting for approximately 70% of cases. Hormonal changes during pregnancy, such as increased levels of estrogen and progesterone, contribute to biliary stasis and the formation of gallstones [12]. Hypertriglyceridemia, another significant cause, is often exacerbated by pregnancy due to increased lipid metabolism [11]. Severe hypertriglyceridemia can lead to the accumulation of free fatty acids in the pancreas, triggering inflammation. Endocrine disorders like hyperparathyroidism and hypercalcemia can also precipitate AP by increasing the levels of calcium, which activates pancreatic enzymes [13]. Hypertensive disorders, including preeclampsia and HELLP syndrome, are associated with an increased risk of AP, possibly due to endothelial damage and inflammation [13].

4.6 Complications

AP in pregnancy can lead to a range of complications, both maternal and fetal [13]. Local complications include pancreatic necrosis, pseudocyst formation, and abscesses [14]. Systemic complications are more severe and include respiratory failure, renal failure, cardiovascular instability, and disseminated intravascular coagulation (DIC) [14]. Fetal complications are also significant, with preterm labor, intrauterine growth restriction (IUGR), and fetal loss being potential outcomes. The risk of these complications underscores the importance of early recognition and management of AP in pregnant women. A multidisciplinary team approach involving obstetricians, gastroenterologists, and critical care specialists is essential for optimizing maternal and fetal outcomes [15].

4.7 Therapeutic Management

The management of AP in pregnancy involves supportive care, addressing the underlying cause, and monitoring for complications. Hospitalization is necessary for all pregnant women with AP to provide intravenous hydration, pain management, and nutritional support [15]. Aggressive fluid resuscitation is crucial to maintain hemodynamic stability and prevent complications such as renal failure. Pain management typically involves acetaminophen and opioids, with careful monitoring to avoid respiratory depression [14]. Nutritional support is tailored to the severity of AP and the patient's ability to tolerate oral intake, with enteral nutrition preferred over parenteral nutrition when possible. Addressing the underlying cause is also critical. For biliary AP, cholecystectomy is the definitive treatment and is safe in the second trimester. For hypertriglyceridemia-induced AP, dietary modifications and lipid-lowering agents are recommended [15]. In cases of endocrine disorders, managing the underlying condition is essential to prevent recurrent AP. Obstetric management includes close monitoring of fetal well-being and planning delivery based on maternal and fetal status. In severe cases, early delivery may be considered to improve maternal outcomes [15].

Management Aspect	Description
Fluid Resuscitation	Aggressive IV hydration to maintain hemodynamic stability
Pain Management	Use of acetaminophen and opioids
Nutritional Support	Enteral or parenteral nutrition based on tolerance
Etiological Treatment	Addressing underlying cause (e.g., cholecystectomy for gallstones)
Obstetric Management	Monitoring fetal well-being, planning delivery

Table 3: Management Strategies for Acute Pancreatitis in Pregnancy

4.8 Future Directions

Research on AP in pregnancy is limited by the rarity of the condition and the ethical considerations of conducting studies in pregnant women [16]. Future research should focus on developing and validating bioclinical scores specific to pregnant women with AP. Large multicenter studies are needed to better understand the epidemiology, optimal management strategies, and long-term outcomes of AP in pregnancy. Additionally, there is a need for guidelines that provide clear recommendations for the diagnosis and management of AP in pregnant women [16]. These guidelines should consider the unique physiological changes of pregnancy and the need for a multidisciplinary approach. Advances in imaging technology, such as the development of safer and more sensitive imaging modalities, could also improve the diagnosis and management of AP in pregnancy [17]. Furthermore, research on the genetic and molecular mechanisms underlying AP in pregnancy could provide insights into potential preventive and therapeutic targets [17].

Prognostic Factor	Impact on Outcome
Severity of Pancreatitis	Determines risk of complications and mortality
Timing of Intervention	Early intervention improves maternal and fetal outcomes
Multidisciplinary Care	Essential for optimizing outcomes

Table 4: Prognosis of Acute Pancreatitis in Pregnancy

5. Conclusion

Acute pancreatitis during pregnancy is a complex condition that requires prompt diagnosis and a coordinated approach to management. Understanding the unique aspects of AP in pregnant women, including the etiologies, complications, and treatment strategies, is critical for improving maternal and fetal outcomes. Continued research and clinical vigilance are essential to advance care for this challenging condition. By addressing the diagnostic challenges, refining bioclinical scores, and optimizing therapeutic management, healthcare providers can better support pregnant women with AP and enhance their prognosis.

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