

ORIGINAL ARTICLE

Pancreatitis In Pregnancy-A Scenario In A Tertiary Care Centre

Abhijit Rakshit^{1*}, Ramprasad Dey¹, Madhumita De², Ranu Roy Biswas³
and Subhash Chandra Biswas¹

¹Deptt of Obstetrics & Gynecology, Institute of Postgraduate Medical Education & Research, Kolkata- 700020, India, ²Deptt of Physiology, Nilratan Sircar Medical college, Kolkata-700014, India and ³Deptt of Pathology, Calcutta National Medical College, Kolkata- 700014 India

Abstract: *Objectives:* To study the etiology and outcome of pregnancy with pancreatitis. *Methods:* The study was conducted in the department of Gynecology & Obstetrics along with School of Digestive & Liver Diseases (SDLD), IPGME & R, Kolkata between March 2006 to February 2009. We have analyzed 29 cases of acute pancreatitis in pregnancy over a period of 3 years. Maternal age, gravida/ parity, gestational age at presentation were noted, diagnostic tests (serum amylase, lipase, LFT, triglycerides, calcium, urinary creatinine / amylase ratio, USG / CT scan) were performed almost in all cases and ERCP in indicated cases. They were categorized as “ gallstone pancreatitis” & “ non-gallstone pancreatitis”. *Results:* The majority (69%) of cases of acute pancreatitis were caused by gallstones. Gallstone pancreatitis occurred in relatively elder age (28.2 years) as compared to nongallstone pancreatitis (24.4 years). All the patients in non-gallstone pancreatitis and 62.10% patients in gallstone group were treated conservatively. There were poor pregnancy outcome like abortion, intrauterine fetal death, preterm delivery due to acute pancreatitis. Study revealed better pregnancy outcome in respect to term delivery in gallstone group (44.85%) in comparison to non-gallstone group (6.9%). We found one maternal death in non-gall stone group. *Conclusion:* This study adds substantially to our understanding of pancreatitis in pregnancy.

Key words: Pregnancy, Pancreatitis, Gallstone.

Introduction

The incidence of pancreatitis ranges from 1 in 1066 live births to 1 in 3333 pregnancies. An attack of pancreatitis was previously thought to be common in nulliparous women. Ramin et al. reported pancreatitis during pregnancy in 72 % of multiparous women [1]. Pancreatitis can occur during any trimester but around 52% of cases are found in the third trimester, it is rarely seen in the postpartum period¹. Acute pancreatitis following medical abortion is also reported [2]. Gallstones are the most common etiological factor accounting for about 67-100% of cases. Small stones are more prone to cause pancreatitis. Recently, sludge in the gall bladder has also been reported to cause the disease in pregnancy. Acute pancreatitis develops due to mechanical obstruction at the ampulla of vater due to passage of stones or sludge [1,3]. Hyperlipidemia is the second most common cause. Pregnancy increases the level of serum cholesterol & triglycerides & causes biliary stasis thus inducing the formation of gallstones. Hypertriglyceridemia may also directly cause acute pancreatitis. The level of serum triglycerides required to induce an attack ranges from

750 to 1000mg/dl. Genetically a mutation in the lipoprotein lipase gene causing hypertriglyceridemia-induced pancreatitis has also been reported in pregnancy [4-5]. Drugs like thiazide (used in pregnancy induced hypertension) & alcohol consumption during pregnancy may induce pancreatitis [6]. Acute necrotizing pancreatitis is also reported in preeclampsia due to pancreatic microvascular alterations [7]. Pancreatitis in pregnancy is also proposed due to reflux of gastrointestinal contents into the ampulla of Vater, mutation in the cystic fibrosis transmembrane conductance regulator gene & immunological interactions between mother & child [8-9]. Signs & symptoms of acute pancreatitis usually include midepigastriaic pain, left upper quadrant pain radiating to the left flank, anorexia, nausea, vomiting, decreased bowel sounds, low-grade fever & associated pulmonary findings. Other symptoms may include jaundice, abdominal tenderness, muscle rigidity & features of hypocalcemia [6]. The most common misdiagnosis of pancreatitis in the first trimester is hyperemesis. In women presenting with severe nausea & vomiting in the first trimester, consider performing serum amylase, lipase levels & liver function tests which when elevated are diagnostic of pancreatitis. Pancreatitis in pregnancy had been associated in the past with a high maternal death & fetal loss. However more recent studies have found that these rates are declining due to earlier diagnosis & greater treatment options, which have improved management of pancreatic symptoms. The relapse rate for gallstone-related pancreatitis is higher (70%) than other causes with conservative treatment alone [6]. We have analyzed 29 cases of acute pancreatitis in pregnancy over a period of 3 years from March 2006 to February 2009 in IPGME&R, Kolkata & described the incidence, cause, complications & management of it.

Materials and Methods

The study was conducted in the department of Gynecology & Obstetrics along with School of Digestive & Liver Diseases (SDLD) of IPGME&R, Kolkata between March 2006 to February 2009. We have analyzed 29 antenatal patients complicated by acute pancreatitis admitted in our institute over a period of 3 years to find out the incidence, cause, complications and fetomaternal outcome. Maternal age, gravida / parity, gestational age at presentation were noted. Diagnostic tests like serum amylase, lipase, LFT, triglycerides, calcium levels, urinary creatinine / amylase ratio, imaging like USG were performed in all cases, CT scan in 3 (three) cases, intervention like ERCP in indicated cases only. Other than estimation of serum amylase & lipase level which increase spontaneously in pregnancy, calculation of urinary amylase to creatinine ratio was done for confirmation. Pancreatitis was diagnosed on the basis of combination of clinical, laboratory & radiological findings. We have also collected information on the number of deliveries which occurred during the study period. Categorization of the cause of pancreatitis was done depending upon different imaging & laboratory studies. Pancreatitis caused by gallbladder stones were categorized as "gallstone pancreatitis". Acute pancreatitis caused by biliary sludge were also included in gall stone pancreatitis. Other etiologies for acute pancreatitis were categorized as "non-gall stone pancreatitis".

Results

Causes	n	%
Gall stone pancreatitis	20	69.00
- Simple	18	62.10
- Post ERCP	1	3.45
- With Alcohol	1	3.45
Biliary Sludge	3	10.35
Alcohol	1	3.45
Idiopathic	3	10.35
Fatty liver in Pregnancy	1	3.45
Traumatic	1	3.45

Over the 3 years of study period, 5565 women delivered at IPGME&R, Kolkata. 29 cases of acute pancreatitis occurred among this population, for a frequency of one in 192 pregnant women. The majority (69%) of cases of acute pancreatitis were caused by gallstones & most of these cases were simple gall stone pancreatitis. Of the 29 cases, 6 cases were due to idiopathic causes & by biliary sludge, 3 (10.35%) in each group. The other causes of acute pancreatitis

were alcohol intake, fatty liver in pregnancy & trauma following road traffic accident as mentioned in Table-1.

Table 2 shows all gall stone pancreatitis occurred in relatively elder age (28.2 years) as compared to non gall stone pancreatitis (24.4 years). In both group of pancreatitis, pregnant women were usually multiparous. Gall stone pancreatitis like the non-gall stone one may present in any trimester. But in our study most of the cases of pancreatitis presented in 3rd trimester.

Type of Pancreatitis	Mean Maternal Age	Parity		Trimester of Presentation		
		Nulliparous	Multiparous	1 st	2 nd	3 rd
Gall stone Pancreatitis	28.2 years	7	16	3	6	14
Non Gall stone Pancreatitis	24.4 years	2	4	1	2	3

There were different pregnancy outcome due to acute pancreatitis like abortion, intrauterine fetal death (IUFD), preterm delivery & term delivery as mentioned in Table 3.

Type of Pancreatitis	Abortion		IUFD	Preterm Delivery		Term Delivery
	Spontaneous	Elective		<35 weeks	>35weeks	
Gall stone pancreatitis	3 (10.35%)	1 (3.45 %)	2 (6.90%)	2 (6.9%)	2 (6.9%)	13 (44.85%)
Non gall stone pancreatitis	1 (3.45%)	0	1 (3.45%)	2 (6.9%)	0	2 (6.9%)

Study revealed pregnancy outcome was better in gall stone group (term delivery 44.85%). Preterm delivery occurred in 6 patients, among them 4 were <35 weeks gestational age. 2 extreme premature babies died after 72 hrs. IUFD occurred in 3 cases.

Type of Pancreatitis	Conservative	Surgical	
		ERCP	Cholecystectomy
Gall stone pancreatitis	18 (62.10%)	2 (6.9%)	3 (10.35%)
Non gall stone pancreatitis	6 (20.70%)	0	0

4 pregnancies terminated due to spontaneous abortion, mainly where pancreatitis presented in 1st trimester. One patient had to undergo MTP following grave sufferings due to acute pancreatitis. Acute Pancreatitis in pregnancy was managed conservatively by IV

fluids, Ryles tube aspiration, IV Antibiotics & Analgesics. Majority of patients were treated conservatively-18 (62.10%) cases in gall stone group and 6(20.7%) patients in non-gallstone group. Procedures like ERCP & cholecystectomy were performed mainly in 2nd trimester to remove gall stones or sludge. 2 patients presented in 3rd trimester were undergone cholecystectomy in postpartum period. Cholecystectomy were done by laparoscopy method. 1 mother in study group died due to non-biliary pancreatitis (Table-4).

Discussion

This review confirms and compares many observations of pancreatitis in pregnancy. Increasing incidence with gestational age has been noted in other studies [1]. The biliary predominance of our cases (79.35%) is similar to 65-100% noted in earlier studies [1]. The overall rate of preterm delivery (20.7%) is similar to 15-20 % observed in Ramin KD et al study [1]. No unified approach to the management of gall stone pancreatitis was discernable in this study, perhaps reflecting controversies in management of biliary disease in pregnancy. For women with gall stone not choosing termination, surgical intervention had done mainly in 2nd trimester - laparoscopic cholecystectomy performed more frequently than open cholecystectomy [12-13]. Based on our findings, we are unable to determine the optimal management of simple gallstone pancreatitis occurred during pregnancy. Although patients receiving antepartum endoscopic intervention had lower rates of premature delivery & recurrence than those receiving conservative care. Parenteral nutrition was considered safe in pregnancy and necessary when adequate oral nutrition was not possible, although the frequency of complications from centrally inserted catheters were higher than in non pregnant patients [14]. Almost three quarter of cases in the study received conservative management in the form of parenteral nutrition, Ryles' tube aspiration, IV antibiotics & analgesics. Even with appropriate screening the cause of pancreatitis may be elusive. Patients may be reluctant to reveal a history of alcohol use during pregnancy for the fear of social stigma. This study adds substantially to our understanding of pancreatitis in pregnancy, in particular affirming the increased risks of mother and fetus associated with nonbiliary pancreatitis (particularly from alcohol, & hypertriglyceridemia) & thus the importance of identifying nonbiliary causes.

References

1. Ramin K, Ramin S, Richey, Cunningham FG. Acute pancreatitis in pregnancy. *Am J Obstet Gynecol*, 1995; 173:187-191.
2. Hallberg P, Hallberg E, Amini H. Acute pancreatitis following medical abortion : Case report. *BMC Women's Health* 2004; 4:1
3. Cynthia Ko. Biliary sludge and acute pancreatitis during pregnancy. *Nature Clinical Practice Gastroenterology & Hepatology* 2006; 3:53-57.
4. Fields K, Barkin J. Pancreatic disease. In principles and practice of medical therapy in pregnancy, ed Gleicher N. Appleton & lange, Stamford (CT)1998, 1142-1147.
5. Keilson LM, Vary CPH, Sprecher DL, Renfrew R. Hyperlipidemia and pancreatitis during pregnancy in two sisters with a mutation in the Lipoprotein Lipase Gene. *Annals Internal Med*1996; 124(4) : 425- 428.
6. Update on Non-obstetric Surgical conditions in Pregnancy. *Journal of Midwifery and women's health*.
7. Parmar M.S. Pancreatic Necrosis Associated with Pre-eclampsia – Eclampsia. *JOP J Pancreas* (online) 2004; 5(2): 101-104.
8. Pai PR, Shah HK, Samsi AB. Post partum pancreatitis . *J Postgrad Med* 1993; 39 : 93-4.
9. Durie P. Pancreatitis & mutation of cystic fibrosis gene. *N Eng J Med* 1998; 339: 687-688
10. Legro R, Laifer S. First trimester pancreatitis : maternal & neonatal outcome. *J Reprod Med* 1995; 40 : 689 – 695.
11. Barthel J, Chowdhury T, Miedema B. Endoscopic Sphinctertomy for the treatment of gall stone pancreatitis during pregnancy. *Surg Endosc* 1998; 12:394-399.
12. Block P, Kelly TR. Management of Gall stone pancreatitis during pregnancy and the post partum period. *Surg Gynecol Obstet* 1989; 168 : 426-8.
13. Swisher SG, Hunt KK, Schmit PJ, Hiyama DT, Bennion RS, Thompson JE. Management of Pancreatitis complicating pregnancy. *Am surg* 1994; 60: 759-62.
14. Russo Stieglitz KE, Levine AB, Wagner BA, Armenti VT. Pregnancy outcoming patient requiring parenteral nutrition. *J Matern Fetal Med* 1999; 8:164-7.

*All correspondences to: Dr. Abhijit Rakshit, Flat B-304, Tribeni Apartments, 45 Kalupara Lane, Dhakuria, Kolkata- 700031 India, e-mail- drabhijitr81@gmail.com