Hyperlipidemia in Pregnancy: A Mixed Bag

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Case Report

Abstract: Acute pancreatitis during pregnancy or in puerperium is a rare medical disorder having diversities in presentation. It carries significant risk of maternal and perinatal mortality ; the incidence of which is 1 : 5000 to 1 : 10,000.During pregnancy, triglyceride levels are raised due to increased production and decreased clearance.LDL and VLDL levels are raised up to third trimester; whereas rise in HDL is observed only up to 20 weeks. Here we present case series of 2 cases which presented between 1991 – 2013, the incidence of hyperlipidemia in Bharati Hospital during pregnancy is 1 : 1,00,000.In both cases , with treatment after termination , lipid levels dropped drastically. Acute Pancreatitis due to hyperlipidemia (which could be Primary or Secondary) can lead to thrombocytopenic purpura , P.I.H. , A.P.H. , Cardiovascular Disease and A.R.D.S.; which is risky for mother's life.

Keywords: Hyperlipidemia, Acute Pancreatitis.

Introduction

During pregnancy physiological changes takes place. The plasma levels of cholesterol and triglycerides increases by 25%--50% above the pregravid level [1]. The levels of low density lipoprotein and very low density lipoprotein increase from first trimester to third trimester of pregnancy [1]. Rise in high density lipoprotein is observed only up to 20 weeks of pregnancy. Rising levels of estrogen act on liver, triggering the synthesis of triglyceride rich lipoproteins [2]. Apart from this, clearance of triglyceride is decreased due to hormonal suppression of lipoprotein lipase activity in the liver and adipose tissues. Acute pancreatitis due to hyperlipidemia which occurs during pregnancy mainly in third trimester or in the puerperium carries significant risk of maternal and perinatal mortality. The incidence of acute pancreatitis in pregnancy is1: 1000 to 3:10,000 [3,4,5]. The proposed pathophysiology is mainly due to the inherited defects:

1. Proteins involved in triglyceride metabolism,
2. Defective hormone modulation of its synthesis
3. Decrease clearance,

These are the causative factors of abnormal triglyceride levels leading to acute pancreatitis during pregnancy. Acute pancreatitis is a rare medical disorder during pregnancy. In Bharati hospital in last 22 years span (1991-2013) we had two patients of Hyperlipidemia.

Case Report

Here we present case series of 2 patients that presented in Bharati Hospital.

Case 1

24 years, gravida 2, presented at 19 wks of pregnancy for routine antenatal checkup. She had first Full Term Vaginal Delivery on 14.11.2009– intrapartum fetal death, male baby, 3.25 Kg, in private hospital. On 8th puerperal day, patient presented with severe pain in epigastric and umbilical region with vomiting, for which she was admitted in Bharati hospital. On examination, she had ascitis, hydrothorax, pleural effusion, cardiomegaly with pericardial effusion. She was shifted to ICU and was on ventilator. She was discharged after 7 days. Patient again presented on 08.07.2010,but no abnormality detected on general examination. Respiratory and Cardiovascular system examination showed no abnormality Per Abdomen examination revealed that Spleen was palpable; Uterus was 18 weeks in size; fetal parts were palpable and fetal heart sounds were present. Ultrasound examination: revealed fetus of 19weeks 2days and no congenital anomalies detected, cardiac activity present. But splenomegaly up to 14cms was present. In view of past history patient was thoroughly investigated and found to have hyperlipidemia with increased urea, creatinine and blood sugar.

Investigations

Table 1: Abnormally increased plasma cholesterol and triglycerides on day of presentation to the hospital in case 1.

Investigations	9.7.2010
S.Cholesterol (130-220 mg %)	**453mg %**
S.Triglycerides (Up to 170 mg %)	**4440mg %**
S.HDL (30-70mg%)	**111mg %**
S.VLDL (Below 35 mg %)	**888mg %**
S.LDL (Less then110mg/dl)	**546mg %**
S.Amylase (Up to 25 to 90IU/L)	51IU/L
Bl. Urea (10-50 mg %)	**58mg %**
S.Creatinine (0.8 -1.2 mg %)	**2.42mg %**
BSL (Up to 150mg %)	**281mg %**

With above findings, a Physician reference was done. The Physician advised fundoscopy which revealed bilateral fundal lipaemia. The general regime for treatment for Hyperlipidemia is Tab. Stator / statins / phenofibrtes etc. These drugs are categories 'X' drugs-highly contraindicated in pregnancy. In order to prevent Acute Pancreatitis, pregnancy was terminated and she was started on Tablet Stator F 20/160, 1 HS. For 2 months. After starting Tablet Stator investigations were repeated at the interval of 15 days and 2months.Weekly follow ups were carried out for 2 months.

Post-Termination Investigations

Table 2: Abnormally increased plasma cholesterol and triglycerides after termination of pregnancy in case 1

Investigations	21.7.2010
S.Cholesterol (130-220 mg %)	180mg %
S.Triglycerides (Up to 170 mg %)	**1200mg %**
S.HDL (30-70mg %)	60mg %
S.VLDL (Below 35 mg %)	**438mg %**
S.LDL Less than 100mg/dl	**130mg %**
S.Amylase (Up to 25 to 90IU/L)	58U/L
Bl. Urea (10-50 mg %)	**58mg %**
S.Creatinine (0.8 -1.2 mg %)	**1.5mg %**
BSL (Up to 150mg %)	98mg %

Investigations at the End of 2 Months

- S. Triglycerides: 428mg% (Up to 170 mg %)
- S.VLDL: 132mg% (Below 35 mg %)

Rests of the investigation were within normal limits. As triglycerides and VLDL remained high enzymatic study was advised.

Table 3: Fluctuating levels of plasma cholesterol and triglycerides from the time of presentation to post termination period and after 2 months of follow up

	09.07.2010	24.07.2010	At end of 2 month
S.Cholesterol (130-220 mg %)	**453mg %**	180mg %	180mg%
S.Triglycerides (Up to 170 mg %)	**4440mg %**	**1200mg %**	**428mg%**
S.HDL (30-70mg%)	**111mg %**	60mg %	----------
S.VLDL (Below 35 mg %)	**888mg %**	**438mg %**	**132mg%**
S.LDL (Less then110mg/dl)	**546mg %**	**130mg %**	----------
S.Amylase (Up to 25 to 90IU/L)	51IU/L	58U/L	----------
Bl. Urea (10-50 mg %)	**58mg %**	**58mg %**	30 mg%
S.Creatinine (0.8 -1.2 mg %)	**2.42mg %**	**1.5mg %**	1mg%
BSL (Up to 150mg %)	**281mg %**	98mg %	100mg%

Case 2

A 22 years old, unregistered primigravida, presented at 38 weeks of pregnancy with a history of chest pain, epigastric pain for 28 hours on 25th 0f Dec 2010. No abnormality was detected on general and systemic examination. Uterus was full term, relaxed, Left Occiputo Anterior, head floating, with regular fetal heart. Per vaginal examination showed cervix long un-effased, tightly closed, head was at -3 station with no Cephalo Pelvic Disproportion and pelvis was adequate. There were no such episodes in the past. She was investigated. No abnormality detected on routine investigations and ECG. Patient was treated as a case of acid peptic disease. As there was no relief, she was investigated further and found to have deranged lipid profile.

Investigations

Table 4: Abnormally increased plasma cholesterol and triglycerides on day of presentation to the hospital in case 2

Investigation	27.12.2010
S.Cholesterol (130-220 mg %)	**292mg %**
S.Triglycerides (Up to 170 mg %)	**1271mg %**
S.HDL (30-70mg %)	65mg %
S.VLDL (Below 35)	**186mg %**
S.LDL Less than 100mg/dl	41mg %
S.Amylase (up to 25 to 90IU/L)	**1030IU/L**
Bl. Urea (10-50 mg %)	**60mg %**
S.Creatinine (0.8 -1.2 mg %)	1.5mg %
BSL (Up to 150mg %)	110mg %

With this she was diagnosed as a case of Hyperlipidemia which is also known as **Hyperchylomicrolinemia.** Labour was induced (31/12/2010), male baby of 2.5kg with APGAR score of 6 and 8. Breast milk suppression was done. On 4th day of delivery she was started with Tab Feno TG 160mg HS and lipid lowering diet. This drug is contraindicated in lactation. Investigations were repeated after 10 days.

Post Delivery Investigations

Table 5: Abnormally increased plasma cholesterol and triglycerides post-delivery in case 2

Investigation	08.01.2011
S. Cholesterol (130-220 mg %)	183mg %
S. triglycerides (Up to 170 mg %)	**930mg %**
S.HDL (30-70mg%)	63mg %
S.VLDL (Below 35 mg %)	**90mg %**
S.LDL (Less than 100mg/dl)	41mg %
S. Amylase (Up to 25 to 90IU/L)	**363IU/L**
Bl. Urea (10-50 mg %)	**56mg %**
S. creatinine (0.8 -1.2 mg %)	**1.5mg %**
BSL (Up to 150mg %)	110mg %

Management in these cases

Statin group of drugs are HMG- CoA reductase inhibitors such as Lovastatin and Pravastatin 40 mg once a day and Fibric acid derivatives i.e. Isobutyric acid derivatives namely, Gemfibrozil 300mg. and Finofibrids 200 mg. They are advocated with meals for reduction of triglycerides, cholesterol and low density lipoprotein. But as statins come under X category drugs [6], they are not safe in pregnancy and hence in the first case pregnancy was terminated and in second case labour was induced. Immediately after termination lipid levels dropped drastically.

Discussion

Hyperlipidemia is the condition of abnormally elevated levels of any or all lipids and / or lipoproteins in the blood. Hyperlipidemia is divided in Primary and secondary subtypes. Primary hyperlipidemia is due to genetic causes while secondary arises due to other underline causes such as Diabetes, it is one of the important predisposing causes for the Acute Pancreatitis which may complicate are thrombocytopenic perpura, PIH, ARDS or cardiovascular disease. Hyperlipidemic pancreatitis though it is rare [7, 8], is associated with higher rate of fetal and maternal mortality. Most cases of Hyperlipidemic pancreatitis in pregnancy are associated with type I or type V familial Hyperlipoproteinemia. The safety and efficacy of fibric acid derivatives (Fenofibrate) and inhibitors of 3 hydroxy-3- methyl glutaryl-coenzyme A (HMG-CoA) reductase is not established. Early diagnosis and dietary management can avert the chylomycronamic crisis. Anti-lipemic drugs are contraindicated during pregnancy, as the drugs belong to category X type, so termination of pregnancy is advocated. Termination of pregnancy is very effective in lowering serum lipid levels. In first case the probability of hyperlipidemia due to congenital metabolic disorder was thought of, because of very high levels of triglycerides and bilateral fundal lipemia. Enzymatic study for confirmation of diagnosis of congenital metabolic disorder is advised. These cases need a proper follow up for further management.

Conclusion

Though Hyperlipidemic pancreatitis is rare, it must be kept in mind in patients presenting with vomiting, pain in abdomen and jaundice. They are likely to be misdiagnosed for the pregnancy related problems. Beam of the symptomatology is so much varied, that extreme decision has to be taken many times in the form of termination of pregnancy or conservation.

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