

Management of severe hypertriglyceridemia in pregnancy: case report and therapeutic strategies

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ABSTRACT

Severe hypertriglyceridemia (HTG) during pregnancy is a rare but serious complication, especially in patients with pre-existing dyslipidemia. This condition carries a high risk of acute pancreatitis, obstetric complications, and increased maternal-fetal morbidity. We report the case of a pregnant woman with familial hypertriglyceridemia who developed acute pancreatitis during pregnancy, requiring multidisciplinary management. The therapeutic approach included strict dietary modification, high-dose omega-3 supplementation, and plasmapheresis, which led to a rapid reduction in triglyceride levels and clinical improvement. This case highlights the importance of close monitoring and early intervention in at-risk patients to prevent severe maternal and fetal complications. Personalized management combining dietary measures, appropriate pharmacological therapy, and extracorporeal techniques remains the cornerstone of treatment for severe HTG during pregnancy.

Keywords: Severe hypertriglyceridemia, pregnancy, pancreatitis, plasmapheresis, omega-3 fatty acids, dietary management, maternal-fetal outcome.

INTRODUCTION

Severe hypertriglyceridemia (HTGS) during pregnancy is a rare but potentially serious condition, which can be life-threatening for both mother and child. While pregnancy is physiologically accompanied by an increase in triglycerides, this phenomenon can become pathological in women with pre-existing hypertriglyceridemia, either genetic in origin or secondary to other risk factors. In these patients, pregnancy acts as a decompensating factor, exposing them to an increased risk of complications such as acute pancreatitis, pre-eclampsia, hyperviscosity syndrome and adverse obstetric outcomes [1,2,3,4]. Early recognition of this situation and multidisciplinary management are essential to prevent maternal-fetal complications.

CASE REPORT:

A 38-year-old woman who had been treated for dyslipidemia for 22 years, and who had stopped taking cholestyramine and polyunsaturated fatty acids a year earlier, presented with abdominal pain associated with vomiting for two months. MRI revealed Balthazar stage C pancreatitis, simple hepatic and renal cysts, and discrete bilateral obstructive uropathy. Initially hospitalized in gynecology, the patient was transferred to the maternity ward after the discovery of an alarming lipid profile, revealing total cholesterol at 8.6 g/L and triglycerides at 98 g/L. On admission, laboratory tests showed moderate leukopenia, anemia and normal platelets. Total bilirubin was elevated, mainly in the unconjugated fraction, while liver enzymes remained undisturbed. Fasting blood glucose is normal, renal function is preserved, and glomerular filtration rate is increased.

The patient's blood was milky in appearance, indicating significant lipemia, which was confirmed by the cloudy appearance of the plasma after centrifugation. Obstetrical ultrasound revealed a progressive pregnancy with a single fetus in cephalic presentation, a fundal placenta and normal amniotic fluid.

After an initial plasmapheresis session, triglycerides fell to 38.6 g/L, total cholesterol to 7.15 g/L, and HDL to 0.29 g/L. Lipase remained moderately elevated. Transthoracic echocardiography revealed concentric left ventricular hypertrophy, a 60% ejection fraction and moderate mitral insufficiency. Fundus examination revealed bilateral retinal lipemia. Renal function tests were unremarkable.



Figure 1: patient's blood sample



Figure 2 : plasma extracted from patient

A second plasmapheresis lowered triglycerides to 21 g/L and total cholesterol to 3.3 g/L, with HDL at 0.31 g/L. Management includes prescription of high-dose omega-369, proton pump inhibitors, corticosteroid injection for fetal lung maturation, preventive anticoagulation with low-molecular-weight heparin, and close monitoring of maternal-fetal cardiac and renal functions.

DISCUSSION

In women with pre-existing hypertriglyceridemia, pregnancy is a major aggravating factor in lipid imbalance. Physiological hormonal changes, notably the increase in estrogen, progesterone and placental lactogenic hormone, stimulate hepatic triglyceride synthesis while reducing the activity of lipoprotein lipase, the key enzyme in chylomicron catabolism. This situation particularly exposes these patients to extreme triglyceride elevations, which can exceed 50 mmol/L, and favours the occurrence of severe complications such as acute pancreatitis, hyperviscosity syndrome, preeclampsia, and even adverse obstetric outcomes such as prematurity or fetal death in utero [1,2,3,4].

Therapeutic management of severe hypertriglyceridemia during pregnancy must be multidisciplinary and rapid. It is based first and foremost on a strict dietary adjustment, favoring a low-fat diet (<20% of total caloric intake) but sufficiently balanced to avoid a deficiency in essential fatty acids, essential for fetal neurological and visual development [1,5]. High-dose omega-3 intake has also been shown to reduce hepatic triglyceride synthesis and promote triglyceride oxidation, with a satisfactory safety profile in pregnant women [6,7].

In the most severe forms, particularly in cases of acute pancreatitis or resistance to dietary and drug treatment, plasmapheresis is an effective therapeutic option, enabling a rapid and significant reduction in circulating triglycerides, and an improvement in the mother's clinical

condition [6,8,9]. However, this technique requires specialized expertise and close monitoring, particularly in terms of hemodynamics and obstetrics.

The use of fibrates, niacin or statins remains controversial during pregnancy due to their teratogenic potential, although there are case reports of the cautious use of gemfibrozil in exceptional situations [1,10]. Finally, surveillance must be continuous, with close monitoring of triglyceride levels, pancreatic function and fetal growth, in order to adapt management according to clinical evolution.

This comprehensive, personalized approach, combining lifestyle modification, appropriate drug therapy, plasmapheresis if necessary and multidisciplinary follow-up, significantly reduces maternal-fetal morbidity and optimizes the prognosis of these high-risk patients [1,2,3,4,6,7,8,9].

CONCLUSION

Severe hypertriglyceridemia in pregnant women with pre-existing dyslipidemia represents a therapeutic emergency requiring individualized, multidisciplinary management. A combination of diet modification, omega-3 and plasmapheresis can rapidly reduce triglycerides and improve maternal-fetal prognosis. Close monitoring and joint involvement of specialized teams are essential to optimize management.

REFERENCES

1. Wong B, Ooi TC, Keely E. Severe gestational hypertriglyceridemia: A practical approach for clinicians. *Obstet Med.* 2015;8(4):158-167.
2. Goldberg AS, Hegele RA. Severe hypertriglyceridemia in pregnancy. *J Clin Endocrinol Metab.* 2012;97(8):2589-2596.
3. Dzenkeviciute V, et al. Pregnancy-related severe hypertriglyceridemia. *Clin Lipidol.* 2015;10(4):299-304.
4. Cortés-Vásquez J, et al. Hypertriglyceridemia and adverse outcomes during pregnancy. *Rev. Fac. Med.* 2018;66(2):247-253.
5. Sivakumaran P, Tabak SW, Gregory K, et al. Management of familial hypertriglyceridemia during pregnancy with plasma exchange. *J Clin Apher.* 2009;24(1):42-46.
6. Nguyen NT, Nath PV, Mai VQ, et al. Treatment of severe hypertriglyceridemia during pregnancy with high doses of omega-3 fatty acid and plasmapheresis. *AACE Clin Case Rep.* 2021;7(3):211-215.
7. Russi G. Severe dyslipidemia in pregnancy: The role of therapeutic apheresis. *Transfus Apher Sci.* 2015;54(2):187-193.
8. Yeh JH, Chen JH, Chiu HC. Plasmapheresis for hyperlipidemic pancreatitis. *J Clin Apher.* 2003;18(4):181-185.
9. Kleess LE, Janicic N. Severe hypertriglyceridemia in pregnancy: a case report and review of the literature. *AACE Clinical Case Reports.* 2019;5(2):e99-e103.

10. Saadi H, Kurlander D, Erkins J, Hoogwerf B. Severe hypertriglyceridemia and acute pancreatitis during pregnancy: Treatment with gemfibrozil. *Endocr Pract.* 1999;5:33-36.

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