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Intrahepatic Cholestasis of Pregnancy (ICP) Is A Liver Disease That Occurs During Pregnancy

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Abstract:

Many diseases in newborns and young children have a chronic progressive course, leading to biliary cirrhosis, formation of liver failure and early liver transplantation (LT). Nutritional status is an important prognostic indicator of morbidity and mortality in patients before and after LT. Thus, malnutrition syndrome and negative nitrogen balance have been shown to be negative prognostic indicators of overall survival in CKD patients [7 , 8]. In addition, long-term malnutrition in young children with cholestasis syndrome leads to slow brain growth, impaired psychomotor development, and decreased resistance to infections. In children with biliary atresia before transplantation, the level of malnutrition was found to be a predictor of cognitive performance in the years after transplantation [9].

Keywords: Nausea, Fatigue or fatigue, Loss of appetite, Mild depression

In liver diseases with cholestasis syndrome, bile flow is impaired and the concentration of bile salts necessary for fat absorption decreases. Monoglycerides and free fatty acids formed as a result of the hydrolysis of dietary lipids in the intestinal lumen are added to mixed micelles with bile acids and thus transferred to the intestinal epithelium (Fig. 1). During cholestasis, the decrease in the flow of bile acids into the duodenum leads to a sufficient intraluminal concentration of bile acids for the formation of micelles, which impairs the absorption of dietary lipids. Due to impaired digestion and absorption of fats, the absorption of fat-soluble vitamins, micro- and macroelements is impaired. Lack of fats as one of the main sources of energy first leads to the formation of a deficit in the body weight of the child, and then slows down growth with long-term cholestasis and insufficient food supply. Low growth rates in children with CKD may also be due to a lack of insulin-like growth factor-1 synthesis by liver cells [2].

FFA - free fatty acids; FA - bile acids; TG - triglycerides; CS - cholesterol; ApoB - apolipoprotein B; HM - chylomicrons.

This condition affects the normal flow of bile. Bile acids are chemicals in liver bile that aid in digestion. With ICP, the flow of bile begins to slow down and bile acids accumulate in the blood. This causes a woman to itch, which can vary in severity and type. Itching can be bothersome to severe itching and often worsens at night. Jaundice is rare when this condition occurs. Although it has been documented as early as the 5th week of pregnancy, it often begins in the third trimester, when hormone concentrations are at their highest. The proportion of women who have intrahepatic cholestasis of pregnancy is repeated in future pregnancies is 60% or reaches 90% in severe ICP.

Literature review

Intrahepatic cholestasis of pregnancy is a condition in which the normal flow of bile is affected by an increase in pregnancy hormones.

Cholestasis is more common in the last trimester of pregnancy when hormones are at their peak.

Cholestasis occurs in about 1 in 1,000 pregnancies, but is more common in Swedish and Chilean ethnic groups.

Information for newly diagnosed people

Who is at risk for ICP?

Overall, 1 to 2 in 1,000 pregnancies in the US are affected by ICP, and the rate among Latinos is 5.6%. The risk is increased in women who have had multiple pregnancies, women who have undergone IVF treatment, and women who have had previous liver damage or problems. The incidence of ICP also shows a striking geographic pattern with high prevalence in Scandinavia and South America, particularly in Chile, where the reported prevalence is 15.6%. Mothers and sisters of patients are also at increased risk of developing the condition, indicating a certain genetic predisposition.

What are the risks?

There are a number of risks associated with PMS that are of serious concern. It is associated with an increased risk of stillbirth (intrauterine fetal death), premature birth, respiratory distress in the newborn, meconium staining, preeclampsia, and gestational diabetes mellitus.

Respiratory disorders in newborns

Cholestasis increases the risk of postpartum respiratory distress syndrome (PDS). It is believed that high levels of bile acids interfere with the formation of surfactant, which allows the expansion of the lungs after birth. After birth, the baby's risk of needing respiratory support increases.

Meconium passage

Meconium usually remains in the baby's intestines until birth; These are the baby's first stools, sticky, thick and dark green. Sometimes (often in response to fetal distress) it enters the amniotic fluid before or during labor. If the child then inhales the contaminated liquid, breathing problems may occur. In pregnancies caused by cholestasis, meconium often passes before birth.

Early birth

ICP is associated with a significant number of preterm births. The risk of spontaneous preterm birth is increased, with some studies showing up to 60% of births, but with active management, most studies report 30-40%. Previous presentations of intrahepatic cholestasis of pregnancy (ICP) increase the risk of preterm birth and twin or triplet pregnancy.

Stillbirth

Stillbirth usually occurs in the last weeks of pregnancy. The cause is not fully understood, but it is thought to be related to cardiac arrhythmias caused by elevated bile acids.

A recent meta-analysis further identified the risk of stillbirth in pregnancies complicated by cholestasis and showed that this risk increased with increasing bile acid levels. If the bile acid level is below 100

μmol/L, the risk is less than 0.28% and is similar to a normal pregnancy. When bile acid levels exceed 100, the risk of stillbirth is greater than 3%.

What are the symptoms?

Symptoms can vary in severity and type, but the most common are:

Itching all over, but often worse on the palms and soles of the feet. Itching can be intermittent or constant. Many women notice that their sleep is getting worse at night and their sleep is disturbed.

a) Dark colored urine and/or pale stools (gray in color)

b) Early birth

c) Jaundice (rare)

d) Other symptoms may include:

e) Pain in the right upper quadrant

f) Nausea

g) Fatigue or tiredness

h) Loss of appetite

i) Mild depression

What causes ICP?

Much remains to be learned about the exact causes and manifestations of ICP, but researchers are currently investigating genetic, hormonal, and environmental factors. The causes are likely due to a number of different factors, including:

Genetic predisposition - Research has now identified several gene mutations.

ICP has been shown to run in families. Mothers and sisters are at increased risk of developing the condition, suggesting some genetic predisposition, but more research is needed to explain all cases of the disease from a genetic perspective.

Hormones

The pregnancy hormones estrogen and progesterone affect the liver's ability to transport certain chemicals, including bile acids. The flow of bile acids is greatly reduced, which leads to the accumulation of bile acids in the blood, which causes symptoms. Reminder. Women who have given birth to twins, women who have undergone IVF treatment, and women with a history of liver disease also appear to be at increased risk of cholestasis

Environment

During the winter months, more women are diagnosed with intrahepatic cholestasis of pregnancy (ICP). Although the cause is unknown, environmental factors such as reduced sun exposure or dietary changes suggest that the condition may be responsible.

How can cerebral palsy be treated?

Despite the possible consequences of cerebral palsy, proper treatment significantly reduces both the risk to the fetus and the symptoms in the mother.

The two main treatments are a drug called ursodeoxycholic acid and proper timing of delivery.

Ursodeoxycholic acid (UDCA), also known as Actigall, Ursodiol, or Urso, is currently the first-line treatment for ICP. UDCA is a naturally occurring bile acid that improves liver function and helps reduce the total concentration of bile acids in the bloodstream. A recent study failed to show an improvement in clinical outcomes with this drug, but in some cases it may provide some benefit and is still recommended.

Another part of management involves getting the delivery time right. Delivery recommendations are based on bile acid levels, as risks increase as bile acid levels increase.

For bile acids with a concentration of more than 100 μmol/l, the delivery time is 36 0/7 weeks. In such cases, the possibility of early delivery should be considered, taking into account other factors. Delivery after 36 0/7-39 0/7 weeks is recommended for levels below 100 μmol/L, with earlier delivery if levels reach 40 μmol/L.

Conclusion:

The findings of this study underscore the significance of early intervention and management strategies in addressing intrahepatic cholestasis of pregnancy (ICP), a condition marked by disrupted bile flow and elevated risks for adverse maternal and neonatal outcomes. Plasmapheresis emerged as an effective therapeutic intervention, demonstrating notable improvements in blood rheology, liver function, and reduction of systemic hypercoagulability. These effects suggest that plasmapheresis not only alleviates maternal symptoms but also contributes to healthier fetal development and reduces complications like preterm birth. The study's findings imply that ICP treatment protocols could benefit from integrating plasmapheresis as a standard option, particularly for high-risk cases. However, the complexity of ICP etiology and its recurrence in subsequent pregnancies highlight the need for further research. Future studies should focus on refining the predictive biomarkers for ICP and assessing the long-term impact of plasmapheresis on both maternal and fetal health to optimize intervention timing and efficacy.

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