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Wilson`s disease in pregnancy: Presentation of a case report

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Abstract

Wilson`s disease is a rare inherited autosomal recessive disorder of copper metabolism causing toxic hepatic and neural accumulation. The gene that regulates the disease is located on chromosome 13 (13q14.3). The signs and symptoms of Wilson`s disease vary depending on the organs that are affected by the disease with almost all the patients showing evidence of progressive liver disease. Its severity varies and is strongly associated with the time of diagnosis. In the present case report we present a rare case presenting with Wilson`s disease during pregnancy and review current management options.

Introduction

Wilson`s disease is a rare inherited autosomal recessive disorder of copper metabolism causing toxic hepatic and neural accumulation. The disease gene (*ATP7B*) is located on chromosome 13 (13q14.3). The signs and symptoms of Wilson`s disease vary depending on the organs that are affected by the disease with almost all the patients showing evidence of progressive liver disease. The disease presents a wide spectrum of clinical manifestations from asymptomatic to chronic liver disease or liver failure. The most common symptoms are neuropsychiatric problems¹. The severity of disease vary and is strongly associated with the time of diagnosis. However the disease can be managed and the early diagnosis and treatment of asymptomatic patients keep away from the development

of symptoms. Wilson`s disease can be fatal if not recognized and treated in advanced stages when it is symptomatic. The current treatments include zinc salts and chelating agents (D-penicillamine and trientine)².

Regarding pregnancy, prior to introduction of penicillamine Wilson`s disease had been linked to subfertility due to menstrual irregularities and the early onset of chronic liver disease. In cases where pregnancy occurred it mostly resulted in spontaneous miscarriage. Therapeutic evolution resulted in successful pregnancy outcomes. Maintenance of medical treatment during pregnancy is recommended while patients are usually monitored closely for hepatic and neuropsychiatric symptoms. Anti-copper therapy during pregnancy is found to be safe³.

Case Presentation

A 27 year old pregnant woman, G1P0, with a history of Wilson's disease was referred to the Maternal Unit of Alexandra Athens University Hospital during the third trimester of her spontaneous pregnancy (at 34w4d of gestation) for a gastroenterological assessment and a caesarian section booking appointment due to her choice to give birth with caesarian.

The patient had dyslipidemia which was well controlled with diet; she had no allergies or gynaecological problems. The liver function and blood clotting tests (INR, PT, aPPT) were regularly checked during gestation and were within the normal range. All the antenatal laboratory tests and fetal scans were within normal limits.

Regarding patient's family history, her parents were both diagnosed with Wilson's disease as well as her older sister. The patient's sister died three months after her first baby's delivery suffering from cirrhosis and liver carcinoma, which was attributed to poor treatment compliance.

During pregnancy, patient was under treatment with penicillamine 250 mg daily and zinc 50mg twice a day. Her pregnancy remained uncomplicated and uneventful until the end. At 37w3d of gestation the patient underwent caesarean delivery of a healthy girl weighing 3.060 kg with a good Apgar score (8 in the first minute). The patient was discharged on the 4th postnatal day.

Discussion

Wilson disease affects many organs and systems. Starting from liver, it causes hepatic failure and cirrhosis, neurological symptoms as tremors and dyskinesias, psychiatric disorders like depression, anxiety and psychosis, Kayser-Fleischer ring around limbus and renal tubular damage leading to chronic hypertension. It impairs the female reproductive system causing menstrual irregularities and miscarriages from copper deposition in uterus. It can also

cause thrombocytopenia, leukopenia and haemolytic anaemia. Also cardiac arrhythmia, cardiomyopathy, myopathy, osteoporosis and chondrocalcinosis can occur⁴.

During pregnancy the levels of serum copper and ceruloplasmin should be measured every trimester as they peak around 24th week of pregnancy and then follow a plateau.

Untreated cases usually lead to miscarriages probably because of highly copper concentration in uterus. Use of penicillamine and zinc is considered safe in pregnancy and improves the outcome for mother and fetus. Zinc interferes with copper's absorption through intestinal metallothionein cells and penicillamine lead to an increase in copper excretion from urine.

As Wilson disease can cause chronic hypertension due to kidney damage, it may lead to hypertension of pregnancy or preeclampsia too, although these morbidities can be independently developed⁵.

Conclusion

Patients with Wilson's disease receiving regular treatment before gestation are usually able to conceive spontaneously and have a successful pregnancy with a good outcome. Use of Zinc Sulphate and penicillamine during pregnancy is safe and with good results. However, since Wilson's disease is associated with miscarriages and pregnancy hypertension/preeclampsia, these pregnant should be considered and managed as high risk⁶. In our case the pregnancy had no complications and the blood pressure was well controlled during gestation.

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