

Case Report: Clinical Management of Gitelman Syndrome in Pregnancy

Background/Synopsis:

Gitelman syndrome is a rare, autosomal recessive disorder that affects the kidneys' ability to reabsorb certain electrolytes, primarily sodium, potassium, and magnesium. Gitelman syndrome is caused by mutations in the SLC12A3 gene, which encodes a protein called thiazide-sensitive sodium-chloride cotransporter (NCC) in the distal convoluted tubule [1]. While the effects of Gitelman syndrome in pregnancy are not extensively documented, current available information suggests a multidisciplinary approach, proactive electrolyte repletion, and early and frequent fetal assessment may be prudent to ensure a healthy pregnancy and prevent complications [2].

Objective/Purpose:

This case report aims to outline the treatment interventions implemented to maintain electrolyte balance, highlight potential complications, and discuss obstetric care and antenatal testing in a pregnant woman with Gitelman syndrome.

Case Presentation:

We report the unique challenges and considerations in the management of a pregnant 36-year-old G1P0 female with a known history of Gitelman Syndrome who successfully delivered a healthy fetus at 39 weeks and maintained adequate electrolyte levels throughout pregnancy. Throughout her pregnancy, she received comprehensive coordinated care between her obstetrician, nephrology, anesthesiology, and maternal-fetal medicine.

Serial electrolyte testing was completed every 2-4 weeks throughout the entirety of the pregnancy, revealing low potassium levels of 2.8 mEq/L at 28 weeks gestational age. Her potassium supplementation was subsequently increased by her nephrologist from 120mEq daily in 2 divided doses to 200 mEq daily in 3 divided doses. After increasing her potassium repletion, her future chemistry studies demonstrated potassium levels of 3.5 mEq/L to 3.8 mEq/L for the remainder of the pregnancy. Weekly biophysical profiles were initiated to monitor fetal well-being at 28 weeks until delivery.

The patient was induced at 39 weeks and 3 days for close electrolyte and fluid balance management. She successfully delivered a healthy 3690-gram male via spontaneous vaginal delivery without complications. She was maintained on 200 mEq of potassium supplementation 3 times daily postpartum. She saw her obstetrician at 2 weeks postpartum and was noted to have a stable mood with no signs of postpartum depression or anxiety. Her potassium level at that time was 4.3 mEq/L. She followed up with her nephrologist at 4 weeks postpartum without changes in her medication regimen, and with her obstetrician at 6 weeks postpartum. Her electrolyte levels remained stable.

Conclusion:

Further research is needed to fully understand the impact of Gitelman syndrome on pregnancy outcomes and to establish optimal management strategies. By closely monitoring electrolyte levels and employing aggressive maternal and fetal monitoring, our case highlights that positive pregnancy outcomes can be achieved.

References:

1. Downie, M., Lopez Garcia, S., Kleta, R. & Bockenhauer, D. (2021). Inherited Tubulopathies of the Kidney. *CJASN*, 16 (4), 620-630. doi: 10.2215/CJN.14481119.
2. Moustakakis MN, Bockorny M. Gitelman Syndrome And Pregnancy. *Clinical Kidney Journal*. (2012); 5(6): 552–555. Doi: 10.1093/ckj/sfs126.