Perioperative management of caesarean delivery for patient with alcoholic cirrhosis and esophageal varices

Madeline Bireley, MD, Catherine Bergeron, MD, C Tyler Smith, MD, Patricia Dalby, MD, Grace Lim, MD, MS

University of Pittsburgh Medical Center (UPMC), Department of Anesthesiology and Perioperative Medicine

Background:

Pregnancy in patients with cirrhosis is rare, and pregnancy threatens many potential risks and maternal-fetal complications

Esophageal varices, bleeding, and thrombocytopenia are all expected to worsen during pregnancy, causing an increased risk for hepatic decompensation and failure

A MELD score $\geq$ 10 predicted liver related complications with 83% sensitivity & specificity

Complications from cirrhosis	Implications in Pregnancy
Esophageal varices	Increased circulating volume, venodilation, and reflux esophagitis worsen varices
Bleeding	Increased effective circulating volume, dilutional thrombocytopenia, splenic sequestration of platelets, and reduced hepatic production of thrombopoietin exacerbate this risk
Anemia	Anemia of chronic disease + dilutional anemia of pregnancy compound each other
Thrombocytopenia	Pressure from the uterus compressing the inferior vena cava worsens hypersplenism and thrombocytopenia
Encephalopathy	Worsening hepatic function in pregnancy can increase risk for encephalopathy
Cardiovascular Manifestations	Hyperdynamic circulatory state can cause patients to develop high output heart failure Rapid uterine involution results in autotransfusion of uterine circulating volume and rapid increase in preload

Case Presentation & Hospital Course

33-year-old G3P0020 female with **alcoholic cirrhosis** presented for cesarean delivery

Past Medical History:

- Alcoholic cirrhosis **(MELD score 13)**
- Portal hypertension and esophageal varices
- Hypertension
- Systemic lupus erythematous

Pregnancy further complicated by gestational diabetes and esophageal varices requiring banding

Patient was admitted to the antepartum service at 25 weeks gestation for fetal growth restriction and **absent fetal growth velocities**

At 28 weeks and 5 days gestation, patient presents for cesarean section due fetal decelerations and low biophysical profile with reversed end diastolic flow

Large bore intravenous access was obtained, and patient received single shot spinal anesthesia with bupivacaine and intrathecal morphine

Intraoperative course was uncomplicated with estimated blood loss of 800 mL

Bilateral single shot transversus abdominus plane blocks were performed for pain management

On POD #6, patient developed confusion and elevated ammonia

Started on lactulose & discharged on POD #7 with improved mental status

Discussion

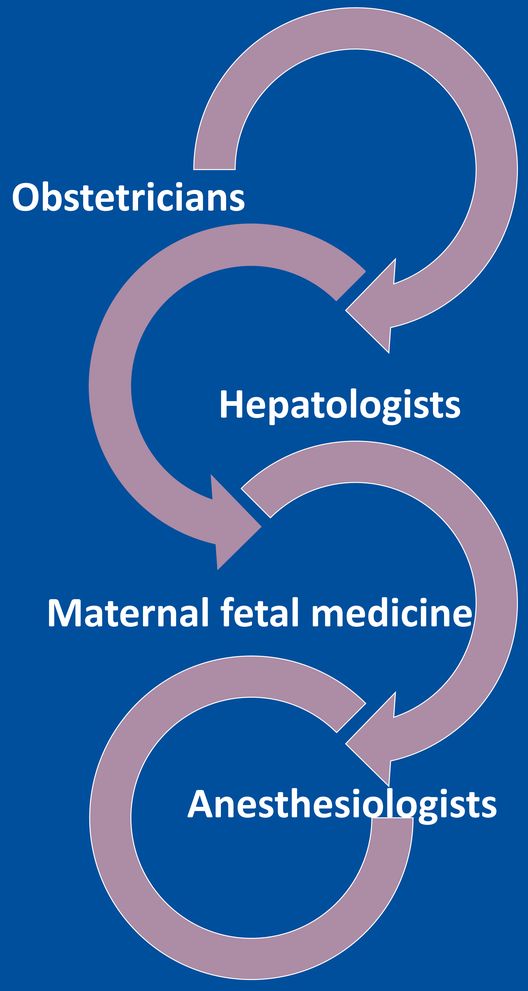
Given increased likelihood of complications from pregnancy and delivery, prenatal care should include consultation with anesthesiology early in pregnancy

Vaginal delivery carries risk for variceal hemorrhage due to Valsalva maneuvers

Cesarean delivery can be complicated by anatomy and superficial abdominal varices

Coagulation status, eligibility for neuraxial anesthesia, potential need for massive resuscitation and blood transfusion should be assessed and discussed with patient

Given risk of cardiovascular complications such as cardiomyopathy and high output heart failure, anticipation of volume shifts is critical



References:
1.Westbrook RH. *Clinical Gastroenterology and Hepatology*. 2011;9(8):694-699.
2.Karim G. *Clinics in Liver Disease*. 2023;27(1):133-155.