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Introduction

We are presenting 5 cases of young, gravid women who all developed COVID infections that progressed to ARDS. As we learned about COVID, our management strategy developed. The first two patients underwent urgent C-sections under general anesthesia, one of whom required a brief course of Venovenous Extracorporeal Membrane Oxygenation (VV ECMO) due to postoperative decompensation. Following these cases, we postulated that avoidance of mechanical ventilation would be preferable. As such, we have managed patients with neuraxial anesthesia.

Cases

Case 1: A 25 year old G1P0 woman at term with a history of asthma and obesity. She underwent urgent Caesarian under general anesthesia with endotracheal intubation for worsening hypoxia secondary to COVID ARDS. Following delivery, she was extubated to 5L NC, but shortly reintubated for hypoxia. She continued to decompensate and was then taken to the operating room for cannulation to VV ECMO. She was extubated and ambulatory while on ECMO and was decannulated to room air 10 days following cannulation, and was later discharged home on room air.

Case 2: 24 year old G1P0 woman with a history of obesity who developed COVID symptoms and was hospitalized the following day. She was at 33 weeks and four days gestation. For days after admission, late decelerations were seen, and she was taken for urgent C-section. She underwent general anesthesia for her procedure and was extubated the following day. She was discharged four days later, on room air.

Case 3: A 25 year old G3P2 woman at 33 weeks gestation. The patient was requiring 90% FiO2 on high flows. She underwent C-section via spinal two days after arrival with femoral and internal jugular line placement for possible ECMO cannulation. Following delivery, oxygen was weaned, and she was discharged home on room air 13 days post delivery.

Case 4: A 33 year old G4P1 obese woman at 34 weeks and 2 days gestation. CT angiogram was concerning for possible subsegmental pulmonary embolus. She was on hi flow nasal canula at 60%. She went to the operating room for urgent C-section via spinal anesthesia with bilateral femoral Cordis placement for possible ECMO cannulation. She was admitted for another 14 days and was slowly weaned to nasal cannula and discharged home on 4 liters, and was weaned in subsequent weeks.

Case 5: A 33 year old G4P3 with obesity who presented at 32 weeks gestation. She was self-proning and needed BiPAP at 100%. Three days later, she was taken for C-section under spinal anesthesia with bilateral femoral central line placement for ECMO backup. Post-operatively, she was initially managed on BiPAP but was subsequently weaned to 2 liters on discharge.



Discussion

Current guidelines for peripartum covid management suggest neuraxial is the superior anesthetic plan. It is recommended to follow standard obstetric indications for vaginal delivery vs Cesarian section. In mild to moderate cases, COVID-19 infection should not affect delivery plans, but there is a theoretical reduction in aerosolization of viral particles during labor when neuraxial anesthetics are used for analgesia. In severe disease, C section may be indicated when there is concern for maternal or fetal decompensation. Spinal anesthesia would be preferred due to lower rates of respiratory depression and no increased risk of aerosolization. In conclusion, spinal and epidural anesthetics decrease the cardiopulmonary stresses of labor and/ or induction of anesthesia. No recommendations currently regarding cannulation for ECMO peripartum Multidisciplinary discussion from the obstetrician, anesthesiologist, intensivist and CV surgery is required for severe covid infection, based of likelihood of decompensation and converting to ECMO.

References

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