Regional Anesthesia for Cesarean Section in Parturient on Prostacyclin Therapy for Pulmonary Arterial Hypertension (PAH): Report of Three Cases

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Introduction: Use of regional anesthesia in parturient with PAH, especially on epoprostenol treatment due to its effect on platelet function, remains somewhat controversial(1). We describe three parturient with severe PAH and a NYHA III/IV, who were treated with epoprostenol infusion for worsening pulmonary symptoms during their second trimester. Each required a cesarean section (c/s) for the delivery between 34-36 weeks with good maternal and fetal outcome.

CASE 1: A 19 y/o G1 with h/o hemoptysis and epistaxis at 27 weeks was diagnosed with PAH, with PAP of 88/22 mmHg and a NYHA class III. She was admitted a week later for worsening symptoms. Epoprostenol infusion slowly titrated from 4 to 10 ng/kg/min improved her symptoms and PAP. She underwent c/s at 35 weeks under invasive monitoring, epidural anesthesia (2% lidocaine, fentanyl, and epinephrine), and norepinephrine infusion for worsening status and PAP of 80/48 mmHg. She was discharged 13 days postpartum after discontinuation of epoprostenol.

CASE 2: A 27 y/o G2P1 with a cyanotic congenital heart disease, multiple repair surgeries and known moderate PAH was admitted at 23 weeks for deterioration of status to NYHA III. Epoprostenol infusion was titrated up to 4 ng/kg/min for 8 weeks with initial improvement. Her status deteriorated at 34 weeks, requiring a c/s under invasive monitoring and a CSE with 6mg bupivacaine, 250μg morphine and 25μg fentanyl. Epidural was supplemented with 2% lidocaine and fentanyl. She was stable throughout. A postdelivery TEG on prostacyclin infusion was normal. She was discharged 10 days postpartum after discontinuation of epoprostenol.

CASE 3: A 34 y/o G2P0 was diagnosed with PAH at 16 weeks of pregnancy due to extreme fatigue, shortness of breath and edema. She was admitted at 26 weeks for worsening symptoms. She was started on epoprostenol infusion (2-4 ng/kg/min) at 32 weeks with improvement. She required delivery due to ruptured membranes at 36 weeks. Her anesthetic management was combined spinal 250μg morphine and general anesthesia (etomidate, succinylcholine, isoflurane, cisatracurium, and fentanyl) under invasive monitoring. She was stable throughout and extubated at the end of the surgery. She was discharged 8 weeks later on oral medications.

Discussion: PAH is a rare disease associated with high morbidity and mortality, especially in parturient who are NYHA III-IV(2). Prostanoid treatment and multi-specialty involvement has improved maternal and fetal outcome significantly, but the anesthetic management still remains complex. From our experience of three cases and review of literature and case reports of use of regional anesthesia in such patients we conclude that c/s seems to be a preferred mode of delivery and regional anesthesia seems to be a preferred safe alternative for either cesarean or vaginal delivery in presence of epoprostenol treatment.