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Fetal Monitoring in Open Fetal Surgery

Editorial

Open surgery and fetoscopic surgery are of the safest procedures, whilst the ex-utero intrapartum treatment (EXIT) procedure has lost its significance as a result of the severe complications experienced both by the mother and the fetus. While uteroplacental circulation maintains, the EXIT is performed before delivery. The fetus is to be delivered at the conclusion of the case. A neonatal resuscitation area and two operating rooms are needed. Significant uterine relaxation is required for open midline station surgery. The risk for rapid bleeding and hemodynamic instability are the common accompanying parts of this procedure. It still continues to be a process done in certain centers not only in United States but also in Europe [1].

Fetal monitoring is necessary for the determination of fetal well-being. Fetal asphyxia, hypoxia or distress must be predicted, identified and avoided in the best way possible. This is also essential for assessment of anesthesia and analgesia, i.e. the fetus' response to painful stimuli. The significance of monitoring the fetal heart rate and fetal pulse oximetry is understood when depressant and vasodilation effect of volatile agents on the fetal myocardia is considered. To

ensure adequate uterine relaxation for the maintenance of anesthesia, at least 2 MAC concentration of an inhaled anesthetic agents are recommended [2]. The use of high concentrations of volatile agents can often require the use of vasopressor agents in order to ensure proper uteroplacental circulation. Approximately 2 MAC deep anesthesia influences fetal acidosis by decreasing fetal blood pressure, heart rate, oxygen saturation and base excess; on the other hand nearly 1 MAC light anesthesia reduces fetal exposure. Therefore, fetal heart rate, oxygen saturation, pH, glucose and electrolyte levels with umbilical blood flow should be monitored [3]. Vascular access can be used for fetal blood sampling and drug therapy with fetal fluid.

Direct fetal electrocardiogram electrodes may be assumed reliable. Fetal electroencephalogram is used with myometrial electrical and mechanical activity monitoring that is a new technique. Near infrared spectroscopy may be used for fetal cerebral oxygen saturation during open fetal surgery.

References

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