

## [NM-185] DESFLURANE-INDUCED ACCELERATED IDIOVENTRICULAR RHYTHM DURING MIDGESTATION REPAIR OF MYELOMENINGOCELE

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### Presentation

A healthy 32-year-old G3P1011 woman at 24 weeks gestation with fetus diagnosed by prenatal ultrasound with L3-S1 myelomeningocele presented for hysterotomy and fetal myelomeningocele repair under general anesthesia.

### Anesthetic Challenge

The patient received a thoracic epidural prior to induction of general anesthesia for post-operative pain management. After uneventful rapid sequence induction with tracheal intubation, propofol and remifentanyl infusions was initiated. After uterine exposure, infusions were stopped and 12% desflurane was initiated reaching end-tidal two MAC within two minutes. Eight minutes thereafter, a wide complex junctional rhythm was noted. Patient was stable hemodynamically. Desflurane was reduced to 6%. After 10-15 beats of a wide complex junctional rhythm, normal sinus rhythm was seen for 1-3 beats in duration followed by return of a wide complex junctional rhythm (Figure 1). The decision was made to give 0.1mg glycopyrrolate with successful return to sinus rhythm. After this episode, desflurane concentration was maintained at 7% and gradually increased to allow for adequate uterine relaxation. The arrhythmic episode lasted five minutes and the remainder of surgical procedure continued without complications.

### Considerations

Accelerated idioventricular rhythm (AIVR) after administration of high dose desflurane has also been described (1). It is an ectopic ventricular rhythm consisting of three or more monomorphic ventricular complexes with a rate of 50-110 bpm. It is a benign rhythm resulting from slowing of intrinsic sinus nodal automaticity or acceleration of ectopic focus (2). Anesthetic management for fetal repair of myelomeningocele requires significant uterine relaxation to maintain uteroplacental blood flow and fetal oxygenation, prevent placental abruption and allow for fetal manipulation. In this population, it is unknown who are at high-risk for developing AIVR. However, administration of nitroglycerin to achieve adequate uterine relaxation in combination with gradual titration of desflurane concentration may reduce the incidence of AIVR. Greater than 1 MAC desflurane can result in maternal hypotension, decreased uterine blood flow, and fetal hypoxia, acidosis and myocardial depression (3). Alternative anesthetic using a combination of nitroglycerin infusion, supplemental intravenous anesthesia with propofol and remifentanyl infusions, lower MAC, ephedrine and phenylephrine may minimize anesthetic overdose (4). Used in tocolysis dosing, small amount of nitroglycerin is known to cross the placenta but human Doppler studies suggest it does not alter normal fetal or uteroplacental blood flow (5). Nitroglycerin also may contribute to reduction of neonatal morbidity and mortality due to decreased risk of birth before 28 week (6).

Management of AIVR includes restoration of AV synchrony by increasing automaticity of SA nodal function with atropine or glycopyrrolate.

## References

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Figure 1: Electrocardiogram depicting AIVR after rapid high concentration [desflurane](#) administration with one fusion complex (white star) and three sinus complexes (black stars). Courtesy of [Marret et al.](#)

