Influence of anaesthetic agents on contractions of the pregnant rat myometrium *in vivo*.

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Background:

- ❖ Propofol is used after extraction of the fetus in pregnant women who have received combined spinal-epidural anaesthesia for caesarean section. In previous studies, it was shown that propofol has an inhibitory effect on uterine contraction like volatile anaesthesia^{1, 2}.
- ❖ On the other hand, it has been shown that dexmedetomidine is an α_2 -adrenergic agonist that induced uterine contraction via a pathway involving G protein³.
- ❖ However, there are no data on a comparison of the effects of propofol, sevoflurane and dexmedetomidine on contractions of a pregnant rat myometrium *in vivo*.
- ❖ The aim of this study was to determine the effects of anaesthetic agents on contractions of the pregnant rat myometrium.

REFERENCES

- 1) Anesthesiology 2001;95:1245-55
- 2) Acta Anaesthesiol Scand 2005;49:1355-1359
- 3) European Journal of pharmacology 2000;390:185-195

Methods:

- ❖ With institutional approval, pregnant rats were anaesthetized and fetuses were removed. A balloon was inserted into the uterus to measure contractions of the myometrium (figure 1, 2).
- ❖ Uterus muscular contractions of the pregnant rats that were sedated with propofol (30 mg/kg/hr, 150 mg/kg/hr), dexmedetomidine (6 mcg/kg/hr, 30 mcg/kg/hr) or sevoflurane (2%, 5%) were measured.
- ❖ Statistical analysis was performed using the unpaired t-test. P values < 0.05 were considered statistically significant.

Figure 1. A balloon to measure contractions of the myometrium.

Figure 2. Diagram and balloon insertion.

Results:

- ❖ Dexmedetomidine significantly augmented contractions of the pregnant rat myometrium. However, there were not significant difference in myometrium contractions in rats sedated with propofol or sevoflurane (figure 3).
- ❖ The effects of every anaesthetic agents on contraction-frequency did not change significantly.

Figure 3. Influence of anaesthetic agents on contractions of pregnant rat myometrium.(n=8)

Conclusions:

- ❖ Dexmedetomidine significantly augmented contractions of the pregnant rat myometrium.
- ❖ Dexmedetomidine may be preferable for maintaining uterine contraction in caesarean section.