Caesarean section

The physiologic changes associated with pregnancy (see Pregnant or lactating patients protocol) influence the choice of anaesthetic and analgesic drugs for caesarean section in queens and bitches. All anaesthetic and analgesic agents cross the placental barrier.

There is more evidence-based information on caesarean section and neonatal vitality and survival for dogs than cats. Premedication is normally recommended to decrease maternal stress and anxiety and to reduce the doses of induction and maintenance agents; in addition the use of opioids provides pre-emptive analgesia. Decreased gastrointestinal motility and the enlarged uterus increase the risk of vomiting and aspiration. Aspiration of gastric contents is thought to contribute to maternal mortality. For this reason if opioids are given preoperatively choose those that are less likely to cause emesis (e.g., buprenorphine, butorphanol, methadone and pethidine); intubation is always warranted to protect the airway and also for delivery of oxygen. Rapid control of the airway is essential therefore mask induction with an inhalant agent is not recommended. The administration of opioids prior to delivery has not been shown to adversely affect the outcome for the offspring. If opioids have been administered to the dam and the offspring are bradycardic, naloxone can be administered via the umbilical vein or sublingually.

Due to their high oxygen requirements and reduced functional residual capacity of the lungs, pregnant animals are at risk for hypoxaemia and oxygen desaturation can occur rapidly at induction of anaesthesia. Pre-oxygenation (3–5 minutes) using a face mask is recommended. Many animals undergoing caesarean section are dehydrated and even in elective situations, fluid losses can be large therefore intravenous fluids are recommended and should be started prior to induction of anaesthesia.

Drugs that are known to increase maternal and/or neonatal mortality include the alpha2-adrenergic agonist xylazine and the inhalant agent methoxyflurane. There is no data on the effect of the newer alpha2-adrenoceptor agonists, medetomidine and dexmedetomidine, on anaesthetic risk associated with caesarean section. However due to the potential for emesis and cardiovascular depression, these drugs as a class are best avoided.

There is some controversy regarding the use of NSAIDs in this setting due to potential uptake and negative effects in the suckling offspring. However, only a small percentage of the dam’s dose of NSAID is secreted in milk and a single post-operative dose is regarded as a suitable compromise. NSAIDS should only be given if hypovolaemia and hypotension have been corrected (see Section 13 of the full Guidelines for details).

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