

capsules

THE CURRENT LITERATURE IN BRIEF

Pregnancy Physiology & C-Section

Over the past several decades the mortality for bitches undergoing cesarean section has decreased from 15% to 1%, but mortality for puppies is still high. In approximately 60% of cases, cesarean sections are done on an emergency basis, and dehydration, hypovolemia, hypotension, exhaustion, hypothermia, toxemia, hypoxia, hemorrhage, and shock are all possible complications, depending on how long dystocia has been in progress. Key physiologic changes in the dam at pregnancy include increased blood volume (40% by term), relative anemia (30% to 35%), increased cardiac output, decreased peripheral vascular resistance, insulin resistance, decreased functional residual capacity of the lungs, increased oxygen consumption, increased minute volume and alveolar ventilation, and decreased PaCO₂ (30 to 33 mm Hg compared with 40 mm Hg). The major clinical implications include decreased volume of drugs needed for epidural anesthesia, increased cardiac work and decreased cardiac output, hypotension, hypoglycemia, increased likelihood of hypoxemia at induction, and more rapid anesthetic induction. Anesthetic maintenance and hyperventilation can cause fetal hypoxemia; key physiologic changes in the fetus can lead to increased likelihood of hypoxemia, inefficient hepatic drug metabolism, and hypothermia. Increased survival of puppies is associated with stabilization of the bitch before surgery, decreased anesthetic time (eg, clipping of the site before induction), adequate personnel for both surgical assistance and neonatal care, and careful postoperative care of neonates and bitches.

COMMENTARY: A thorough knowledge of the physiologic changes that occur during pregnancy is essential for making appropriate decisions about when to perform a cesarean section. While many breeders will be able to provide accurate information concerning the pregnancy, there will also be occasions when a detailed breeding history is not available and the veterinarian must assess whether or not intervention is indicated based on the physical examination and diagnostic procedures. This article provides a practical approach to the perioperative management of the bitch undergoing cesarean section, postoperative management of the dam, and neonatal care.—*Eric R. Pope, DVM, MS, Diplomate ACVS*

Cesarean section in dogs: Physiology and perioperative considerations. Ryan SD, Wagner AE. *COMPEND CONTIN EDUC PRACT VET* 28:34-42, 2006.