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Puppy survival and vigour associated with the use of a low dose medetomidine premedication, propofol induction and maintenance of anaesthesia using sevofluorane gas-inhalation for caesarean section in the bitch
Kurt G M De Cramer, Kenneth E Joubert, Johan O Nöthling

Rant en Dal Animal Hospital, Mogale city, South Africa, Department of Paraclinical Sciences, Faculty of Veterinary Science, University of Pretoria, South Africa, Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, South Africa.
kdcramer@mweb.co.za

The safety of an anaesthetic protocol that included the alpha2-adrenergic agonist medetomidine hydrochloride (Domitor®, Zoetis, Sandton) at 7 µg/kg iv as premedicant, propofol (Fresenius propoven 1%, Fresenius Kabi, Midrand) (1 to 2 mg/kg iv) as induction agent and sevofluorane (Sevoflo, Safeline Pharmaceuticals, NorthCliff), at 2% in oxygen for maintenance of anaesthesia was studied in 292 bitches undergoing caesarean section and 2232 puppies delivered. The effects of the medetomidine was reversed using atipamezole (Antisedan®, Zoetis) at 50 µg/puppy sc immediately following delivery and in the bitch at 20 µg/kg iv immediately following surgery. The protocol did not include the use of preoxygenation of bitches prior to induction or the use of opioids. The safety of this protocol was expressed using survival of puppies immediately after, 2 h after and 7 d after delivery, as well as Apgar scores of the puppies which were performed starting 15 min after delivery of the last puppy. The maternal survival rate was established after delivery of the last puppy, at 2 h and at 7 d post CS. The 292 bitches included 148 Boerboel bitches, 84 English bulldog bitches and 60 other purebred bitches, which resulted in a total of 2232 puppies and per breed respectively, 1378, 541 and 313 puppies. Records were made of puppies found dead on ultrasound before anaesthesia as well as puppies euthanized due to malformations. The live delivery rate for the Boerboel, English bulldog and other purebred bitches respectively was 97.39%, 96.67% and 96.69%. After correction for malformed euthanized puppies and foetuses discovered dead on U/S, the 2 h puppy survival rate respectively for Boerboels, English bulldogs and other purebreds was 97.41%, 95.60% and 95.58%, and the 7 day puppy survival rate respectively was 91.04%, 85.60% and 89.46%. The Apgar scores averaged 9.66 for all the breeds combined, 9.77, 9.35 and 9.68 for Boerboel, English bulldogs and other purebred breeds respectively. These results of the puppy survival rate and puppy vigour of the current study compare favourably with those published of other widely used anaesthetic protocols1-3. The maternal survival rate was 291/292. One Boerboel died from a gastric dilatation and volvulus 2 d following surgery. The average Glasgow pain scale for bitches at discharge was (6.40 ± 0.65, S.E.M. = 0.04, n = 292). This study concludes that the use of medetomidine hydrochloride at 7 µg/kg iv is safe as premedicant in bitches prior to caesarean sections and is associated with good puppy vigour, 2 h and 7 d puppy survival rates. The use of medetomidine as premedicant permitted the use of less than ½ the dose of propofol usually required as induction agent.