

Cardiovascular effects following epidural injection of romifidine in isoflurane-anaesthetized dogs

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Objective: To investigate the cardiovascular effects of epidural romifidine in isoflurane-anaesthetized dogs.

Study design: Prospective, randomized, blinded experiment.

Animals: A total of six healthy adult female Beagles aged 1.25 +/- 0.08 years and weighing 12.46 +/- 1.48 (10.25-14.50) kg.

Methods: Anaesthesia was induced with propofol (6-9 mg kg⁻¹) and maintained with 1.8-1.9% end-tidal isoflurane in oxygen. End-tidal CO₂ was kept between 35 and 45 mmHg (4.7-6.0 kPa) using intermittent positive pressure ventilation. Heart rate (HR), arterial blood pressure and cardiac output (CO) were monitored. Cardiac output was determined using a LiDCO monitor and the derived parameters were calculated. After baseline measurements, either 10 microg kg⁻¹ romifidine or saline (total volume 1 mL 4.5 kg⁻¹) was injected into the lumbosacral epidural space. Data were recorded for 1 hour after epidural injection. A minimum of 1 week elapsed between treatments.

Results: After epidural injection, the overall means (+/- standard deviation, SD) of HR (95 +/- 20 bpm), mean arterial blood pressure (MAP) (81 +/- 19 mmHg), CO (1.63 +/- 0.66 L minute⁻¹), cardiac index (CI) (2.97 +/- 1.1 L minute⁻¹ m⁻²) and stroke volume index (SI) (1.38 +/- 0.21 mL beat⁻¹ kg⁻¹) were significantly lower in the romifidine treatment compared with the overall means in the saline treatment [HR (129 +/- 24 bpm), MAP (89 +/- 17 mmHg), CO (3.35 +/- 0.86 L minute⁻¹), CI (6.17 +/- 1.4 L minute⁻¹ m⁻²) and SI (2.21 +/- 0.21 mL beat⁻¹ kg⁻¹)]. The overall mean of systemic vascular resistance index (SVRI) (7202 +/- 2656 dynes seconds cm⁻⁵ m⁻²) after epidural romifidine injection was significantly higher than the overall mean of SVRI (3315 +/- 1167 dynes seconds cm⁻⁵ m⁻²) after epidural saline injection.

Conclusion: Epidural romifidine in isoflurane-anaesthetized dogs caused significant cardiovascular effects similar to those reportedly produced by systemic romifidine administration.

Clinical relevance: Similar cardiovascular monitoring is required after epidural and systemically administered romifidine. Further studies are required to evaluate the analgesic effects of epidural romifidine.