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Observation of blood pressure guided fluid therapy in a bleeding-resuscitation animal experiment

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Protocol Information

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Summary: The current protocol is a bleeding-resuscitation model intended to imitate the effects of severe blood loss and subsequent fluid resuscitation. The experimental subjects were Vietnamese pot-bellied pigs of both sexes weighing 33 ± 4 kg. The animals underwent a 12-hours fasting pre-operatively but had free access to water. Anesthesia was induced by intramuscular injection of a mixture of ketamine (20 mg/kg) and xylazine (2 mg/kg) and maintained with a continuous iv. infusion of Propofol (50 μ L/min/kg IV; 6 mg/kg/hr), while analgesia was maintained with intermittent nalbuphine (0.1 mg/kg). After endotracheal intubation, the animals were mechanically ventilated with a Hamilton C1 respirator (Hamilton Medical AG, USA). The tidal volume was set to 10 ml/kg, and the respiratory rate was adjusted to maintain the end-tidal carbon dioxide and partial pressure of arterial carbon dioxide within the range of 35–45 mmHg and the arterial pH between 7.35 and 7.45. The depth of anaesthesia was assessed by checking jaw tone. After induction of anaesthesia, catheters were inserted into the left jugular vein, left external carotid artery and the left femoral artery. For invasive hemodynamic monitoring, a transpulmonary thermodilution catheter (PiCCO, PULSION Medical Systems SE, Munich, Germany) was used. The femoral artery served as the site for arterial blood gas sampling, the central venous line was used for taking central venous blood gas samples and for the injection of cold saline boluses for the thermodilution measurements, whilst the carotid arterial catheter was used for draining blood. A transpubic catheter was placed into the urinary bladder for monitoring renal function. Animals were covered in scrubs and an external heating device was used to maintain physiological body temperature.

Associated Publications: Öveges N, László I, Tánczos K, Németh M, Lebák G, Tudor-Drobiejowski B, Érces D, Kaszaki J, Rudas L, Huber W, Molnár Z (2018) Mean arterial pressure targeted fluid resuscitation may lead to fluid overload: A bleeding-resuscitation animal experiment. PLoS ONE 13(6): e0196188. doi: [10.1371/journal.pone.0196188](https://doi.org/10.1371/journal.pone.0196188)

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