

A Simple Method of Blood Pressure Measurement in the Pig Using a Neonatal Cuff

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Abstract

The pig is a commonly used large animal model in experimental studies. Few non-invasive techniques exist however for the measurement of blood pressure in the porcine model. This study evaluates the novel use of the easily available neonatal blood pressure cuff for measuring blood pressure in the pig.

Six Yorkshire pigs were used for the study. Blood pressure measurements obtained by the application of neonatal blood pressure cuff (Hewlett Packard) around the base of the tail were compared with results obtained from intra-arterial measurements in the normotensive range as well as in experimentally created hypertensive (intravenous dopamine) and hypotensive (hypovolaemic shock) ranges.

Results of the two techniques are closely correlated (Pearson's coefficient = 0.95, 0.97, 0.90). Systematic bias was however detected at the extremes of hypertensive and hypotensive blood pressure. Analysis of the limits of agreement (method of Bland and Altman) showed that neonatal blood pressure cuff measurements fall within—2 to 2.5 mmHg of the readings obtained from the invasive technique (95% confidence interval).

The neonatal blood pressure cuff technique is a good substitute for the standard invasive intra-arterial measurement of blood pressure in the pig model.

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