INVASIVE BLOOD PRESSURE IN ANESTHETIZED HORSES: DOES THE ARTERY SITE MATTER?

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Introduction

Administration of anesthetic drugs combined with recumbency can compromise patient homeostasis, therefore adequate monitoring is essential during general anesthesia. Invasive blood pressure monitorization is highly recommended in horses, particularly when inhalant anesthetics are administered.

Peripheral arterial pressures differ from aortic pressures: the systolic pressure increases and the diastolic pressure decreases as the distance from the heart increases. Also, comparisons between blood pressure values from auricular artery with major central arteries show “widely” variability in rabbits and pigs. In the same way, several studies have shown a poor agreement between non-invasive blood pressure (NIBP) with invasive blood pressure (IBP) measurements in horses.

Aims

- To evaluate the agreement between blood pressure values measured in the auricular artery, lateral digital artery, and metatarsal artery with the facial artery.
- To assess agreement between blood pressure values measured by oscillometric method on tail with the facial artery.

Material and Methods

- Institution Animal Ethics Committee – 14851/16
- Six healthy horses (424.2 ± 40.73 kg)
- Xylazine / Ketamine + Midazolam
- Isoflurane / IPPV / L lateral = 90 min
- Dobutamine = MAP 70-90 mmHg (IBP from facial)
- HR, ECG, SpO2, Capnography, ETISO, Temperature
- Agreement – Repeated-measures Bland-Altman

Results

- Low bias but high 95% LOA for IBP comparisons
- High bias and high 95% LOA for NIBP x FA
- Physiologic parameters were on normal range
- Failures: 2 NIBP, 1 AA, and 1 LDA

<table>
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<tr>
<th>Mean ± SD IBP from FA</th>
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<tr>
<td>SAP 85.4 ± 10.3 mmHg</td>
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<tr>
<td>MAP 70.6 ± 9.3 mmHg</td>
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<tr>
<td>DAP 58.5 ± 9.5 mmHg</td>
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Conclusion

- There is reasonable agreement for invasive blood pressure values among the arteries evaluated, specially for MAP values, in horses anesthetized in lateral recumbency
- Oscillometric method results in inaccurate blood pressure values in anesthetized horses

References


