CLINICAL SETTING COMPARISON OF INDIRECT BLOOD PRESSURE MEASUREMENT IN DOGS AND CATS BY USE OF A DOPPLER AND AN OSCILLOMETRIC DEVICE.

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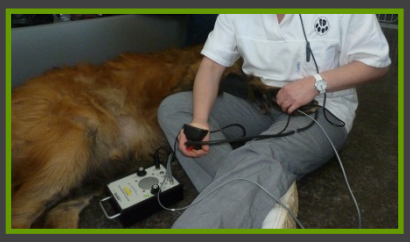
Introduction

Blood pressure (BP) measurement has become increasingly important in the clinical setting. Indirect BP measurement has been advocated and the Doppler ultrasonic technique has been widely accepted. However it requires some technical expertise and animal collaboration. Therefore multiple oscillometric devices have been marketed to facilitate BP measurement in the clinical setting, unfortunately often without clinical validation.



Objectives

The aim of this study was therefore to compare the results of a widely marketed oscillometric device (PetMap®) with the results obtained by traditional Doppler.

Material and methods

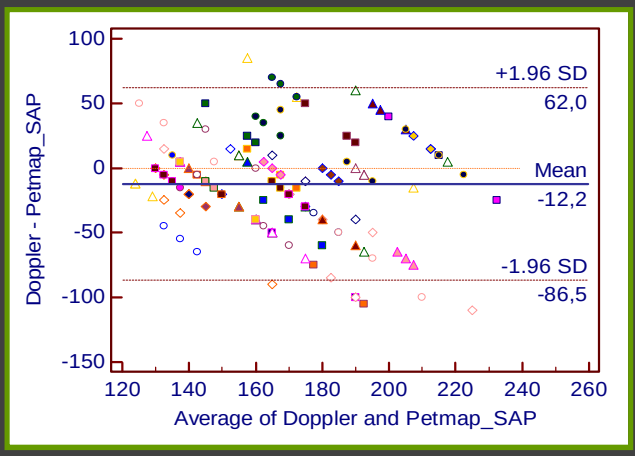
BP was measured following the 2007 ACVIM guidelines (6 consecutive measurements with Doppler, 3 with Petmap®), with the owner present and just prior to clinical examination for a variation of clinical conditions seen in a cardiorespiratory referral centre. Doppler measurement always preceeded oscillometric measurement, and the same limb was used with a similar cuff size. The same experienced operator (NVI) obtained all BP measurements. With the Doppler Parks Medical 811B device only systolic BP was evaluated. With the Petmap device systolic (SAP), diastolic (DAP) and mean BP (MAP) were recorded, but only systolic BP was compared with the Doppler results.

Statistical analysis was performed with MedCalc® Software. Correlation, bias and precision were estimated using the Pearson's correlation test and a Bland Altman plot for multiple measurement data.

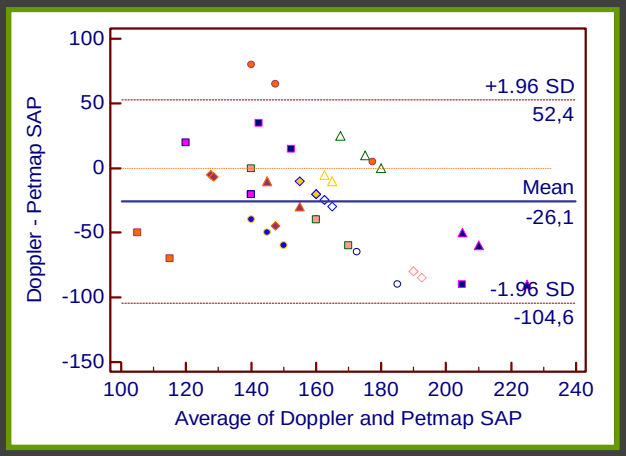
Results

Fifty-one client-owned dogs and fifteen cats participated in the study.
In dogs readings were obtained for 100 % of the Doppler measurements but only for 95 % of the Petmap SAP measurements. The CV was respectively 17.6 and 19.7 %. The mean difference was -12 mm Hg. The limits of agreement were between -68.25 and +43.75 mm Hg. The Pearson's correlation coefficient was 0.3 with a significance level of P=0.0006.
In cats readings were obtained for 100 % of the Doppler and 100 % of the Petmap SAP measurements. The CV was respectively 16.3 and 22.3 %. The mean difference was -26 mm Hg. The limits of agreement were between -92.48 and +40.4 mm Hg. The Pearson's correlation coefficient was 0.3 with a significance level of P=0.07 due to small sample size.

BLAND-ALTMAN PLOT FOR MULTIPLE MEASUREMENTS COMPARING DOPPLER WITH PETMAP FOR SAP IN DOGS



BLAND-ALTMAN PLOT FOR MULTIPLE MEASUREMENTS COMPARING DOPPLER WITH PETMAP FOR SAP IN CATS



Conclusion

In conclusion, due to lack of correlation, bias, agreement and precision the Petmap® device cannot be advocated as a replacement for the Doppler device for indirect BP measurement in the dog and cat in the clinical setting.