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Comparison of telemetry and high-definition oscillometry for blood pressure measurements in conscious dogs: Effects of Torcetrapib

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Abstract

This study compared torcetrapib-induced blood pressure (BP) changes simultaneously obtained by high-definition oscillometry (HDO) and telemetry. Male beagles ($n = 6$) received single oral doses of vehicle or torcetrapib at 10 or 30 mg/kg; BP were acquired simultaneously by HDO and telemetry from 2 h before dosage until 7 h afterward. Systolic, diastolic, and mean arterial pressures (MAP) and heart rate were compared by using Altman-Bland agreement analysis. Dogs were allocated into subgroups according to temperament and baseline MAP (less than 110 mm Hg and 110 mm Hg or greater). Both methods demonstrated high precision. HDO recordings exhibited higher variability for all parameters (inclusive MAP SDs were 7.0 ± 2.7 mm Hg for HDO compared with 3.4 ± 1.9 mm Hg for telemetry), accompanied by a positive bias for all pressures (systolic, 10.4 mm Hg; diastolic, 5.7 mm Hg; MAP, 1.9 mm Hg). Both methods detected similar maximal increases in MAP with 30 mg/kg torcetrapib (HDO, 15.8 ± 10.4 mm Hg; telemetry, 15.8 ± 5.3 mm Hg). No significant effects were noted for heart rate. Torcetrapib elicited a dose-dependent increase in BP in dogs with baseline MAP of less than 110 mm Hg, whereas increases were maximal with 10 mg/kg in the other group, and dose-dependence was no longer observed. BP changes were influenced by animal temperament, demonstrating that HDO results must be interpreted with caution. HDO may provide a useful and accurate method for noninvasive BP measurements in canine studies.