Development of the methodology for neurobehavioral, cardiovascular and respiratory (NCR) assessments using oral administration of amphetamine and acepromazine to conscious beagle dogs

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The integral assessment of neurobehavioral, cardiovascular and respiratory (NCR) system in telemetered conscious animals is becoming more widely employed in safety pharmacology studies. The purpose of this study was to assess the feasibility of performing a NCR safety pharmacology study with amphetamine and acepromazine, compounds known to modulate neurobehavior, when administered orally to conscious beagle dogs and to validate procedures.

0.5% methylcellulose (5 mL/kg), 1 mg/kg amphetamine (5 mL/kg) or 2-3 mg/kg acepromazine (two 10 mg tablets per animal) were administered orally to 4 male beagle dogs. The cardiovascular parameters (DSI ART: blood pressure, heart rate) waveforms), respiratory parameters (EMKA IOX RIP: respiratory rate, tidal volume and minute volume) and neurobehavior (EMKA IOX video) were monitored for 2 hours prior to and 24 hours following the dose administration. In addition, animals were observed for potential neurobehavioral effects using a standard observation battery which allows the assessment for both peripheral and central nervous system in dogs. At 2 and 24 hours postdose after the completion of the cardiovascular and respiratory data collection, the neurobehavioral assessments were performed while animals were in and out of their cages. Following amphetamine or acepromazine administration, the expected changes in NCR systems were observed, thus demoinstrated the validity of the procedures used.