

Cardiorespiratory reflex effects induced by intravenous administration of ethanol in rats

Penna, Mario

Brugere, Solange

Canas, Muriel

Saavedra, Alvaro

Intravenous administration of a bolus of ethanol (40 mg/100 g b.w.) to rats induced bradycardia, hypotension and apnea. Bradycardia was dose dependent ($r=-0.78$, $p<0.001$). Acute bilateral vagotomy blocked bradycardia and hypotension. Apnea, however, persisted in all cases but was of short duration and occurred after a significant delay as compared to an untreated group. Atropine (0.1 mg/100 g b.w.) and hexamethonium (0.75 mg/100 g b.w.) blocked bradycardia and early hypotension. Pretreatment with reserpine (0.25 mg/100 g b.w. IP 24 and 48 hours before the experiment) significantly increased bradycardia induced by ethanol as compared to untreated animals. In rats pretreated with reserpine and vagotomized, IV ethanol did not induce bradycardia, early hypotension or apnea. A bolus of ethanol (20 mg/100 g b.w.) given directly into the left ventricle did not induce reflex changes in heart rate or respiration, while the same dose of alcohol given IV decreased heart rate by $53\pm 8.9\%$. Thus, the