

Changes in total and transmural coronary blood flow induced by ethanol

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Summary: We studied the effects of ethanol on total coronary resistance and on the resistance across the left ventricular wall in the isolated empty beating heart of the dog. The coronaries were perfused with homologous fresh blood, thermoregulated at 37°C and equilibrated with a gas mixture of O₂ (95%) and CO₂ (5%). Coronary flow distribution was measured with radioactive microspheres. In 22 experiments in which coronary flow was kept constant, ethanol (calculated concentration in the perfusing blood, 2.9±0.2 g·litre⁻¹) produced a significant decrease in perfusion pressure (from 14.2±0.5 to 11.9±0.5 kPa, P<0.005). This decrease in perfusion pressure was not caused by metabolic autoregulation since ethanol produced a decrease in the oxygen consumption of the heart (2.19±0.43 to 1.62±0.31 cm³·min⁻¹·100 g⁻¹, P<0.05). It was not caused, either, by a decrease in extravascular compression since ethanol did not produce any further decrease in perfusion pressure after maximal dilatation of the