Effect of left intraventricular pressure on magnitude of vascular waterfall in the epicardial coronary veins

Domenech,

Macho,

Barros,

Study objective: The aim was to test the hypothesis of a vascular waterfall in the epicardial veins due to compression by the left ventricular (LV) pressure. If this were so, the epicardial venous pressure should be a direct function of the LV pressure. Design: Canine arrested hearts were used, without autoregulation and perfused with the Langendorff technique. Coronary flow and outflow pressure were measured in the great cardiac vein, which was the only outflow of the system. The pressure in an epicardial vein was also measured. The measurements were done with LV pressures varying from zero to 40 mm Hg. The outflow pressure was progressively increased until a steady decrease in flow occurred. This pressure was considered the critical outflow pressure. Experimental material: 19 mongrel dogs, 18-25 kg, were used. The animals were anaesthetised and the hearts perfused in the Langendorff manner with homologous blood. Measurements and main results: The epicardial venous pressure before out