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EFFECT OF RES-DEL® RS-C SOLUTION ON THE VIABILITY OF ISOLATED RAT HEART PREPARATIONS OVER 1-6 HOURS OF CARDIOPLEGIC ARREST

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Numerous cardioplegic solutions to date have been utilised by cardiothoracic surgeons to cause cessation of both mechanical and electrical activity of the human heart during coronary by-pass surgery. The surgical procedures last for 45-100 min. during which time there can be no escape from cardioplegic arrest and no ventricular fibrillation upon re-animation of the arrested heart. The criteria defined above for an ideal cardioplegic solution have been met using Res Del® RS-C solution containing 50 mg L⁻¹ chloromycetin in preliminary experiments on the isolated Langendorff rat heart preparation maintained in a Res-Del® Perfusion Bath system. Initial experiments have indicated, in comparison to phosphate buffered St Thomas (STS) and Celsior® cardioplegic solutions, that recovery of RS-C cardioplegic rat hearts was far superior, giving 100-165% recovery of cardiac function following 1-6 h of cardioplegic arrest at either 20-25 °C or 35 °C with no occurrence of ventricular fibrillation. Preliminary experiments using the *non-paced*, working rat heart in a comparison of the cardiac performance during perfusion with Krebs-Henseleit (+2 mmol. L⁻¹ pyruvate) and RS-I solutions have indicated (1) that in RS-I mammalian solution cardiac performance was 700% greater and coronary flow rates 300% greater than those observed in Krebs-Henseleit solution.

(1) Rees D (1989) March: Biomessiechnik-Verlag March GmbH. 5. pp 85-94 pp 123-132.

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