

Original Paper

Protective effect of perserved solutions of Krebs contains verapamil, adrenaline and propranolol in comparision with Krebs and Heparinated blood on desqumation of the endothelial cell in Saphenous vein of Guinea pig

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Abstract

Background and Objective: The most important factor in the integrity of saphenous vein is the health degree of endothelium which guaranties the dilation of them after cronary bypass surgery. Kind of preservative soulution has a key role in endothelial protection. This study was done to evaluate Protective effect of perserved solutions of krebs contains verapamil, adrenaline and propranolol in comparision with Krebs and Heparinated blood on desqumation of the endothelial cell in Saphenous vein of Guinea pig.

Methods: This experimental study was done on 28 male Guinea pigs with 380±40g weight.for separating 3mm of saphenous vein rings and Measuring of rings nitric oxide released in preserving solutions: Krebs (K), Krebs plus propranolol (K+P), adrenaline (K+A) and verapamil (K+V) compaired with heparinized blood at 30, 45, 60 and 90 minutes after harvesting measured by micro plate Griess reaction. Rings also stained by H&E and examined by light microscopy to evaluate endothelial desqumation.

Results: Average concentration of nitric oxide (NO) in the Krebs plus Verapamil solution (K+V) Vs Heparinized Blood (HB), Krebs (K), Krebs plus Adrenaline (K+A) and Krebs plus Propanolol (K+P) revealed significant increase in NO release (P<0.05). The maximum NO measurement was 45 minuts after harvesting. Also histological study with H&E staining showed that endothelial layer was intact only in Krebs plus verapamil in compaired to control group, but in the other solutions the vascular intimal cells had suffered different degrees.

Conclusion: It seems that Krebs solutions containing verapamil has more efficiently to the proper functioning of the saphenous veins endothelium in animal modle.

Keywords: Endothelium, Saphenous vein, Krebs solution, Verapamil, Nitric oxide, Guinea pig

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