Histidine-tryptophan-ketoglutarate (HTK–Custodiol) cardioplegia versus blood enriched crystalloid cardioplegia in patients with impaired left ventricle (L.V) function undergoing cardiac surgery.

Thesis
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Background:

Myocardial protection is as important as meticulous surgical technique and decisions in improving cardiac surgery outcome. Cardioplegia is considered a corner stone in myocardial protection strategies and there are many cardioplegic solutions, however there is no agreement on ideal cardioplegic solution, and it's all left to institutional preference.

Aim: the main aim of this study is to compare the clinical outcomes of using Histidine-Tryptophan-Ketoglutarate (HTK)-Custodiol solution with blood enriched crystalloid cardioplegia in patients with impaired left ventricle function (Ejection fraction ≤ 45%) undergoing cardiac surgery.

Patients and methods: Sixty-three patients with impaired left ventricular function undergoing CABG or valve replacement were divided into two groups based on the cardioplegic solution used: Group A, 30 patients, received HTK-Custodiol® and Group B, 33 patients, received blood-enriched crystalloid cardioplegia. Data from each group were collected and compared with each other.

Results: The Custodiol group required less intraoperative inotropic support. However, ventricular fibrillation upon aortic declamping was more frequent in this group, requiring more defibrillation shocks. Postoperative cardiac enzyme levels and echocardiographic findings were significantly better in the Custodiol group. Custodiol use was associated with lower postoperative hemoglobin levels and hyponatremia. ICU stay, inotropic support duration, and mechanical ventilation time were significantly shorter with Custodiol ($P<0.05$). There were no significant differences in arrhythmia incidence or overall complication rates ($P>0.05$).

Conclusion: Single dose of Custodiol cardioplegia gives better results regarding postoperative cardiac markers and Ejection fraction representing better myocardial

protection. Custodiol disadvantages includes high postoperative arrhythmias incidence, low hemoglobin and serum sodium levels.

Keywords: Cardioplegia, Myocardial protection, Cardiac surgery, Custodiol