Impact of reduced creatinine clearance on early heart transplantation outcomes: a propensity score adjusted analysis

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KEYWORDS: heart transplantation, renal failure, outcomes.

CITATION: Cardiol Croat. 2015;10(9-10):208. | DOI: <http://dx.doi.org/10.15836/ccar.2015.208>

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GOAL: Renal insufficiency is a relative contraindication for isolated heart transplantation (HTx).¹⁻³ We aimed to determine the independent effect of preoperative creatinine clearance (CrCl) on HTx outcomes.

PATIENTS AND METHODS: 220 patients underwent HTx in Croatia from 2008 to 2014. Four patients were excluded due to missing data. Patients were dichotomized according to a CrCl cut-off value of 50 ml/min (Group A: CrCl≤50 ml/min; Group B: CrCl>50 ml/min). Sixty-three patients (29%) had a CrCl≤50 ml/min. Propensity score (PS) adjustment was performed by accounting for recipient age and gender, AF, smoking, ischemic time, CPB time, BMI, mechanical circulatory assistance (MCS) and reoperation.

RESULTS: Patients in Group A were older (56±11 vs. 49±12 years, $P<0.001$) and had longer donor ischemic times (197±65 vs. 162±62 min, $P<0.001$). No significant differences were noted in recipient gender (48/63 (76%) vs. 125/153 (82%) male, $P=0.355$), donor age (39±13 vs. 39±12 years, $P=0.875$), donor gender (46/63 (73%) vs. 100/153 (65%) male, $P=0.338$), PVR (213±107 vs. 188±96 dyn*s*cm⁻⁵, $P=0.145$), diabetes (18/63 (29%) vs. 34/153 (22%), $P=0.382$), reoperation (18/63 (29%) vs. 34/153 (22%), $P=0.382$), CPB duration (175±62 vs. 158±56 min, $P=0.06$) or preoperative MCS (6/63 (10%) vs. 17/153 (11%), $P=0.813$). Six-month mortality was higher in patients with a CrCl≤50 ml/min (18/63 (29%) vs. 19/153 (12%); unadjusted OR 2.82 [95% CI 1.36-5.84]; $P=0.009$). Similarly, group A patients were more likely to require renal replacement therapy (RRT) (16/63 (25%) vs. 17/153 (11%); OR 2.72 (1.28-5.82); $P=0.012$). After PS adjustment these differences remained significant for both 6-month mortality and RRT (OR 2.44 [95% CI 1.09-5.49]; $P=0.030$ and OR 3.36 [95% CI 1.43-7.92]; $P=0.005$, respectively).

CONCLUSIONS: Patients with a CrCl≤50 ml/min undergoing isolated HTx had inferior 6-month survival and required RRT more commonly. The impact of CrCl remained significant after adjustment for multiple perioperative covariates.

RECEIVED:

August 28, 2015

ACCEPTED:

September 17, 2015

LITERATURE

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