Prediktori šestomjesečnog mortaliteta nakon transplantacije srca Predictors of 6-month mortality after heart transplantation

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UVOD: Transplantacija srca zlatni je standard u liječenju terminalne faze srčanog zatajivanja. Ograničenje metode čini nedostatak prikladnih donorskih organa.

METODE: Podatci su temeljeni na retrospektivnoj analizi baze podataka bolesnika kojima je učinjena transplantacija srca. U periodu od 2008 do 2014 godine evidentirano je 118 transplantacija srca, od kojih je 116 učinjeno u odraslih bolesnika. Hemodinamski podatci su uzimani nakon indukcije u anesteziju (T0), nakon odvajanja od EKC-a (T1) te 1. i 7. poslijeoperacijskog dana (T3 i T4).

REZULTATI: 6-mjesečno preživljenje bilo je 84%. Bolesnici koji su preživjeli 6 mjeseci nakon transplantacije srca bili su mlađi (50 ± 14 vs. 60 ± 7 godina, $P=0.003$) te su imali viši klirens kreatinina (59 ± 19 vs. 46 ± 20 mL/min, $P=0.01$). Vrijednosti serumskih laktata kod preživjelih bolesnika bili su niži u svim ispitivanim točkama (T0: 2.4 ± 2.4 vs. 3.1 ± 2.2 , $P=0.03$; T1: 5.1 vs. 9.4 ± 4.4 , $P=0.001$; T2: 2.7 ± 1.9 vs. 3.9 ± 2.3 , $P=0.01$; T3: 1.8 ± 1.1 vs. 3.1 ± 3.3 mmol/L, $P=NS$). Funkcija donorskog organa bila je bolja u T1 (CI: 4.1 ± 1.1 vs. 3.0 ± 1 L/min/m² $P=0.002$, LVSWI: 30 ± 11 vs. 18 ± 7 g/m²/beat, $P=0.001$) i T2 (CI: 3.8 ± 0.8 vs. 3.3 ± 0.9 , $P=0.07$; LVSWI: 33 ± 10 vs. 26 ± 9 g/m²/beat, $P=0.01$), ali ne i u točki T3. Dijabetičari te bolesnici s prijeoperacijskom fibrilacijom atrija imali su značajno veći rizik od smrti (odds ratio (OR) 3.3 (1.0-10.7), $P=0.03$ i OR 2.4 (0.8-7.7), $P=0.095$). Reoperacijski zahvati bili su opterećeni većim srednjeročnim mortalitetom (OR 3.2 (0.95-10.9), $P=0.049$). Korištenje adrenalina u neposrednom poslijeoperacijskom tijeku surogat je pokazatelj težine hemodinamskog poremećaja te je bio jasan prediktor smrtnog ishoda (T1: OR 4.4 (1.2-16.4), $P=0.02$; T2: 12.1 (3-51), $P<0.001$).

ZAKLJUČAK: Gore navedeni prediktori smrtnog ishoda mogu se koristiti kao nadopuna postojećim algoritmima selekcije primatelja srčanih transplantata. Nadalje, mogu identificirati bolesnike kod kojih bi mehanička potpora srcu u perioperacijskom periodu bila preferencijalna metoda optimizacije hemodinamike nad eskalacijom inotropne potpore.

INTRODUCTION: Orthotopic heart transplantation (OHT) remains pivotal in the management of end-stage heart failure, but remains limited by a shortage of donor organs.

METHODS: A retrospective review of our OHT database was performed. Out of a total of 118 OHTs between 2008 and 2014, 116 were performed in adults. Variables associated with 6-month mortality in patients aged 15 years or more were analyzed. Hemodynamic data was obtained preoperatively (T0), after weaning from CPB (T1) and on postoperative days 1 and 7 (T2 and T3, respectively).

RESULTS: 6-month survival of OHT recipients was 84%. Survivors were younger (50 ± 14 vs. 60 ± 7 yrs, $P=0.003$) and had superior creatinine clearances (59 ± 19 vs. 46 ± 20 mL/min, $P=0.01$). Their lactate levels were lower at all time points (T0: 2.4 ± 2.4 vs. 3.1 ± 2.2 , $P=0.03$; T1: 5.1 vs. 9.4 ± 4.4 , $P=0.001$; T2: 2.7 ± 1.9 vs. 3.9 ± 2.3 , $P=0.01$; T3: 1.8 ± 1.1 vs. 3.1 ± 3.3 mmol/L, $P=NS$). Their donor heart performances were superior at T1 (CI: 4.1 ± 1.1 vs. 3.0 ± 1 L/min/m² $P=0.002$, LVSWI: 30 ± 11 vs. 18 ± 7 g/m²/beat, $P=0.001$) and T2 (CI: 3.8 ± 0.8 vs. 3.3 ± 0.9 , $P=0.07$; LVSWI: 33 ± 10 vs. 26 ± 9 g/m²/beat, $P=0.01$) but not at T3. Diabetic OHT recipients and those with preoperative AF were more likely to die within the first 6-months post-procedurally (OR 3.3 (1.0-10.7), $P=0.03$ and OR 2.4 (0.8-7.7), $P=0.095$, respectively). Reoperation carried a significant mortality burden (OR 3.2 (0.95-10.9), $P=0.049$). Utilization of epinephrine in the immediate postoperative period, which is clearly a surrogate marker of pronounced hemodynamic disturbance, was associated with adverse outcome (T1: OR 4.4 (1.2-16.4), $P=0.02$; T2: 12.1 (3-51), $P<0.001$) in our series.

CONCLUSIONS: The aforementioned predictors of adverse outcome might promote better selection algorithms designed to improve long-term results of OHT. Furthermore, they may identify patients in whom early institution of mechanical circulatory assistance may be preferable over escalation of inotropic support.

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LITERATURE

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