Prošireni sažetak / Extended abstract

The change in pulmonary vascular resistance after left ventricular assist device implantation - the predictive role of platelets revisited

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Purpose: While analyzing the group of patients implanted with a left ventricular assist device (LVAD) at our institution to verify which of the pre- and postoperative factors constitute the optimal survival outcome predictors, we determined a significant increase in postoperative pulmonary vascular resistance (PVR) values in the expired patients1. The aim of this study was to further analyze the data in order to determine which of the preoperative factors were related to the aforementioned increase in postoperative PVR values.

Methods: For the 20 patients (18 M, 2 F; mean age 58.7±8.3 years) that have been implanted with an LVAD in our institution during the past 2 years, preimplantation echocardiography, right heart catheterization (RHC) and laboratory data were collected and compared according to the values of the postimplantation PVR. The groups were compared by using the adequate statistical test (t-test, Mann Whitney U test, statistical significance set at 0.05). Correlation analysis and linear regression were performed.

Results: Among the 20 patients, 14 had postoperative RHC data and 4 of them were proven to have elevated PVR values (>2.4 WU). When comparing the pts. with elevated to those with normal PVR values, no significant difference was found neither in the RV function (FAC 33±7% vs 22±12%, TAPSE 1,0±0,7 cm vs 1.6±0.5 cm, NS), nor in the RV and LV dimensions (RVIDd 34±9 mm vs 35±12 mm, LVIDd 65±10 mm vs 73±9 mm). The borderline significance was found in the left ventricular EF (28±3% vs 19±8%, p=0.06) and the degree of the MR (median values 1 vs 2, p=0.05). The preoperative RHC parameters were not found to be predictive of changes in postoperative PVR (preoperative PVR 4,2±3,4 vs 3,4±1,5 WU, C.I. 1,8±0,7 vs 1,9±0,4 L/min/m^2, TPG 14±11 vs 13±4 mmHg and RVSWI 11,4±2,2 vs 8,9±2,1, NS). As for the laboratory values, only the platelet count significantly differed between the groups (128 ±73 vs 246±65 E3/mm^3, p<0.05). The correlation analysis showed a strong negative correlation between the platelet count and postoperative PVR values (r=-0,761, p<0.01). The linear regression verified the following relationship between the variables PVR=6,247-0,017xPLT, p<0.01).

Conclusion: These preliminary data show that the platelet count is a significant predictor of the postoperative PVR values in patients with an LVAD (a previously shown survival predictor1). Further investigation will be conducted to explain the role of platelets in the etiology of PVR in our group of pts.

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Literature

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