



POOR PROGNOSIS PREDICTORS IN HEART TRANSPLANT CANDIDATES WITH CLASS 2 BY UNOS

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Background:

The search for predictors of patients best or worst prognosis in a heart transplant waiting list (HTx WL) can increase patients survival due to timely transplantation of patients with a worse prognosis and a decrease in the number of premature transplantations in patients with preserved reserves of therapy.

Objectives:

To determine the poorest prognosis predictors among patients included in the HTx WL whose UNOS status were class 2.

Method:

We retrospectively analyzed HTx WL data that was collected from 2010 to 2020. The study included patients (n=145), whose UNOS status, at the time of inclusion in the HTx WL, were class 2 and reached the end point: death, heart transplantation (HTx) or exclusion from HTx WL due to an improvement of their status. Mean age was 48.4±12.1 (from 11 to 67) years, 81% (n=117) were male, BMI was 24.9±4.4 kg/m². Patients were divided into 2 groups: the 1st group (n=112) - patients who were excluded from the HTx WL (improvement of the functional class of chronic heart failure (CHF)), as well as those who retained the 2nd class of UNOS before HTx; 2nd group (n=33) - patients whose UNOS status deteriorated from 2 to 1B/1A class or died.

Results:

The 2nd group of patients had lower levels of SBP rather than in the 1st group (102±17 mm Hg vs. 109±17 mm Hg, p=0.03), the same as less of them were obese (1 (3%) vs. 27 (24%), p<0.001). The following results of the laboratory data were collected: the RDW in the blood (17±9% and 18±4%, p=0.01); the level of sodium in the blood (139±4 vs. 137±4 mmol/l, p=0.02). In patients from the 2nd group pulmonary hypertension prevailed (55%, n=18, p=0.05) and



52% of them (n=17, p=0.005) developed infectious complications, including pneumonia in 18% (n=6). Based on the data of binary logistic regression a predictive model (p<0.001) was developed to determine the probability of the poorest prognosis in patients from the HTx WL. Based on the value of the Nigekirk determination coefficient, the model takes into account 29% of the factors determining the probability of prediction: sensitivity - 36%, specificity - 98%. The prognostic significance of a positive response was 80%, the prognostic significance of a negative result was 87% and the diagnostic accuracy was 87%. Based on the results of logistic regression, it was determined that the development of pneumonia in a HTx WL and a higher percentage of RDW are predictors that worsen the prognosis in a HTx WL; and a higher concentration of sodium in blood serum and a high level of SBP increases the chances of a favorable outcome in a HTx WL.

Conclusion:

In conclusion, 23% of patients switched from UNOS class 2 to class 1 or died while waiting for the HTx. CHF patients who deteriorated while in the HTx WL initially had more severe clinical presentation. Pneumonia, high RDW, low serum sodium level, low SBP have the greatest significance for predicting the poorest prognosis in HTx WL patients who were identified as class 2 based on UNOS classification.