Abstract: 1928

Clinical utility of the IMPACT score for mortality prediction after heart transplantation: external validation study.

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Topic(s):
Heart Transplantation

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Background: The Index for Mortality Prediction After Cardiac Transplantation (IMPACT) score was derived and validated as a predictor of short and long term mortality after orthotopic heart transplantation (OHT). According to the standards in prediction model research, before implementing a risk score in daily clinical decision making, discrimination ability and impact in clinical practice or prognosis should be evaluated. The primary objective of this work is to externally validate the IMPACT score in the Spanish cohort.

Material and methods: Spanish Heart Transplant Registry data were used to identify adult (>16 years) OHT performed from January 2000 to December 2015. Retransplantation and combined transplantation were excluded from the analysis. Individual values of the IMPACT score were calculated for each patient. Overall 1-year mortality after OHT was assessed and 1-year mortality rates between predefined IMPACT score groups (0-2pts, 3-5pts, 6-9pts, 10-14pts, =15pts) were compared. Correlation between the observed and expected mortality according to the IMPACT score was evaluated. Finally, discrimination ability was assessed by the area under the ROC curve.

Results: We identified 2,814 OHT. Mean age was 53 ± 12 years, 78% were male and 31% had dilated ischemic cardiomyopathy. Mean value of the IMPACT score was 6.3 ± 4.9 points. Overall 1-year survival rate was 79.1%. Kaplan-Meier 1-year survival rates by IMPACT score groups were 84.6%, 81.3%, 79.4%, 76.4% and 58.3% respectively (Log-Rank test: p <0.001). Correlation between the observed and expected mortality according to the IMPACT score was evaluated. Finally, discrimination ability was assessed by the area under the ROC curve.

Conclusions: OHT mortality in Spain is adjusted to that expected by the IMPACT score, so there is good calibration of the predictive model. However, its predictive strength is poor and similar to that determined by chance. On the other hand, there is a lack of studies that compare the IMPACT score with other predictive models and studies that evaluate the impact on clinical practice and outcomes of OHT. In the absence of these studies, we cannot implement the IMPACT score in our daily clinical decision making.
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Conclusions: OHT mortality in Spain is adjusted to that expected by the IMPACT score, so there is good calibration of the predictive model. However, its predictive strength is poor and similar to that determined by chance. On the other hand, there is a lack of studies that compare the IMPACT score with other predictive models and studies that evaluate the impact on clinical practice and outcomes of OHT. In the absence of these studies, we cannot implement the IMPACT score in our daily clinical decision making.