The Annals of Thoracic Surgery
Volume 93, Issue 3, March 2012, Pages 699-704

Original article
Adult cardiac

What Predicts Long-Term Survival After Heart Transplantation? An Analysis of 9,400 Ten-Year Survivors

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https://doi.org/10.1016/j.athoracsur.2011.09.037

Background

This case-control study was conducted to identify factors predictive of 10-year survival after orthotopic heart transplantation (OHT).

Methods

Prospectively collected data from the United Network for Organ Sharing registry were reviewed to identify adult patients undergoing OHT between 1987 and 1999 (N = 22,385) who had survived 10 years. Controls were those who had died within 10 years of OHT. Factors associated with 10-year survival were identified with multivariate logistic regression analysis. Lowess smoothing plots were used to identify linear breakpoints in continuous variables, and splines were incorporated when appropriate.

Results

There were 9,404 ten-year survivors (42%; mean follow-up, 14.0 ± 3.0 years) and 10,373 controls (46%) with a mean survival of 3.7 ± 3.3 years post-OHT. Predictors of 10-year survival in the optimal multivariate model were age younger than 55 (odds ratio [OR], 1.24; 95% confidence interval [CI], 1.10 to 1.38; $p < 0.001$), white race (OR, 1.35; 95% CI, 1.17 to 1.56; $p < 0.001$), shorter ischemic time (OR, 1.11; 95% CI, 1.05 to 1.18; $p < 0.001$), younger donor age (OR, 1.01; 95% CI, 1.01 to 1.02; $p < 0.001$), annual center volume of 9 or more (OR, 1.31; 95% CI, 1.17 to 1.47; $p < 0.001$), mechanical ventilation (OR, 0.53; 95% CI, 0.36 to 0.78; $p = 0.001$), and diabetes (OR, 0.67; 95% CI, 0.57 to 0.78; $p < 0.001$).

Conclusions

Age younger than 55 years, annual center volume of 9 or more, white race, shorter ischemic time, and younger donor age improved the likelihood of 10-year survival after OHT. Mechanical ventilation and diabetes reduced this likelihood. These data should serve as a useful guide to long-term prognostication in adult OHT.

Section snippets

Data Source

The Standard Transplant Analysis and Research files were obtained from the UNOS registry. Follow-up data were available through 2010. This data set contains prospectively collected information on transplantations performed in the United States. Exempt status was granted by the Institutional Review Board because no patient or center identifiers were included. …

Study Design

This was a case-control study limited to adult patients aged 18 years or older undergoing OHT between 1987 and 1999 in the prospectively …

Study Population

During the study period, 22,385 adults underwent primary, single-organ OHT. There were 9,404 ten-year survivors (42.0%). The controls included 10,373 OHT recipients (46.3%) who died within 10 years of transplantation. The remaining 2,608 patients (10.9%) were lost to follow-up and therefore excluded from analysis.

Patients included in the study were a mean age of 51.4 ± 10.9 years, with 4,194 women (21.2%). Mean body mass index was 25.3 ± 4.6 kg/m^2, and 16,509 recipients (83.5%) were white. The …

Comment

During the past 40 years, OHT has evolved into the gold standard therapy for end-stage heart failure. Although many institutional and registry data have been published regarding outcomes and predictors of outcomes after OHT, most have been limited to short-term and intermediate-term follow-up after transplantation. As such, the aim of the current study was to identify predictors of 10-year survival after first-time adult OHT using a large cohort of patients from the UNOS database.

Excluding …

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