Permanent pacemaker implantation after paediatric heart transplantation: risk factors, indications and outcomes

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Background

• Permanent pacemaker (PPM) implantation after orthotopic heart transplantation (OHT) in children has been variably described at 2.8% - 12.3%.\textsuperscript{1-4}

• Although there is extensive data regarding PPM implantation in adults after OHT, few paediatric studies focus on the topic.

• We sought to investigate the incidence, risk factors, indications, and outcomes of PPM implantation in paediatric heart transplant recipients.

Study Design

- 316 paediatric patients underwent OHT at our institution (2000 - 2018).

- Divided into 2 groups: those who received a PPM after transplant, and those who did not.

- Analysis:
  - Univariable correlation of patient demographics:
    - Recipient and donor age; recipient and donor gender; transplant indication; donor-to-recipient weight ratio; ischaemic time; mechanical circulatory support; rejection episodes.
  
  - Multivariable logistic regression.

  - Kaplan-Meier estimator and log-rank test.
Results

• 16 patients (5.1%) were implanted with a pacemaker post-transplant.

• Donor age was the only significant risk factor for PPM implantation, with a mean age of 27.3 ± 15.3 years in the pacing group vs. 18.6 ± 14.4 years in the non-pacing group (P = 0.020).

• Indication for pacemaker insertion was more often complete heart block (12/16, 75%) than sinus node dysfunction (4/16, 25%).

• There was no significant difference in mortality between recipients who received a PPM and those who did not (log-rank test; P = 0.118).
Conclusion

• Our data show that PPM implantation after heart transplant in paediatric patients is a rare event.

• Increasing donor age was the only risk factor we identified to predict the need for pacemaker placement.

• Complete heart block was the most frequent indication for pacemaker requirement following bicaval cardiac transplantation.

• Post-transplant PPM implantation has no adverse impact on overall survival.
Disclosures

- I have no disclosures.

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