

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%.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.

Acknowledgements

Thank you

Professor Michael Burch

Dr Jacob Simmonds

Dr Matthew Fenton

Alanna Morrison

Dr Jasveer Mangat

Dr Rachel Andrews

Mr Ben Davies

