



Long Term follow-up of VDD pacemaker leads and VDD pacing in pediatric population

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VDD pacing In Pediatric Patients

- Feasibility of VDD pacing in children/adolescents¹
- Intermediate-time follow-up favorable²
- Controversies in regard to endocardial/epicardial implantations
- Improved performance of epicardial leads vs. two decades ago
- Purpose: Long-term follow-up of VDD pacing in children/adolescents and effect on LV function

¹Rosenheck et al. Pacing Clin Electrophysiol 1997;20:1961-1966
Seiden et al. Pacing Clin Electrophysiol 1997;20:1967-1974
Rosenthal et al. Pacing Clin Electrophysiol 1997;20:1975-1982

² Rosenheck et al. Am J Cardiol 1998;81:1054-1056
Rosenheck et al. Pacing Clin Electrophysiol 2000;23:1226-1231

Methods

- Since January 6, 1994, VDD pacemaker implanted in 25 children/adolescents
- All implanted using left subclavian vein approach
- Follow-up every six months
- Replacements when ERI indicated
- Lead replacement/extraction when indicated
- Upgrade to CRTD if LV function deteriorated

Patients

- 25 patients, 19 male and 6 female
- Age at implantation: 6 months – 16 years
- Mean Follow-up 13 ± 5 years (longest follow-up >19 Years)
- Majority had surgically corrected congenital heart disease – 20
- Congenital AV Block – 5

Results

Group 1.

- Same original Single Pass lead for 13 ± 5 years 14 patients:

3 no replacement

9 1 replacement

2 2 replacements

All had excellent thresholds and impedances

Results (cont.)

Group 2.

- Upgrades integrating the Single Pass lead in 3 patients:
 - 1 upgrade to DDDR (atrial lead addition) after 8 years
 - 1 upgrade to CRTP after 11 years
 - 1 upgrade to ICD after 2 months

Results (cont.)

Group 3.

- Single Pass lead failure and replacement:
 - 4 new Single Pass lead with extraction of the original lead
 - 2 addition of new ventricular lead and use of the atrial sensing of the original Single Pass lead

Results (cont.)

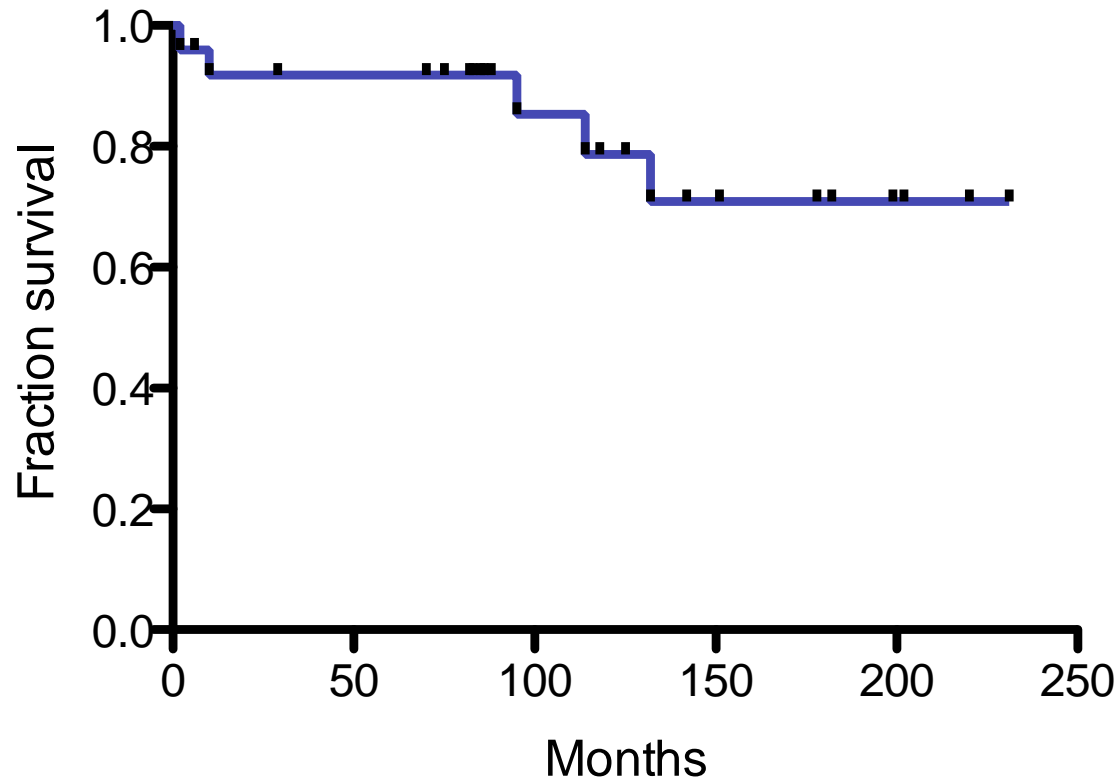
Group 4 and 5.

- Each group with one patient:
 - 1 Single Pass lead failure with replacement with atrial and ventricular leads and need for upgrading to DDDR
 - 1 Recurrent infection X4 and downgrade to VVIR and epicardial lead

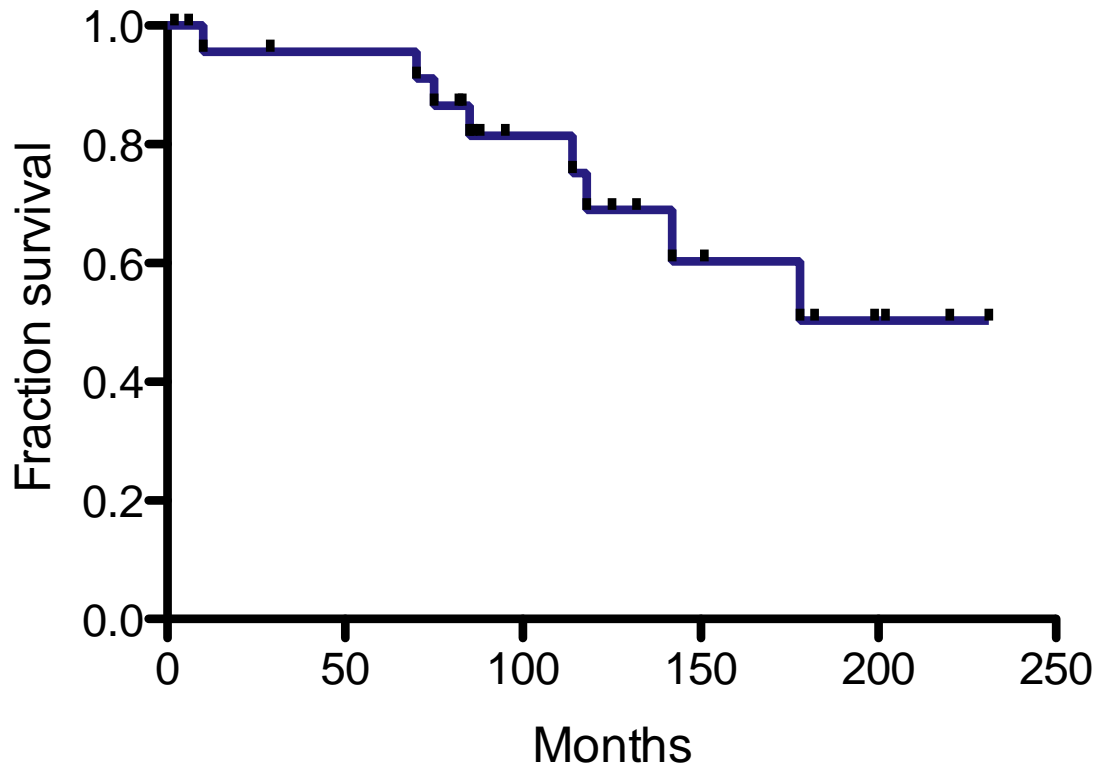
Results Summary

- 68% of functioning original Single Pass lead
- 16% replacement of the Single Pass lead and extraction of the original lead
- 8% addition of ventricular lead and use of the atrial sensing of the original Single Pass lead
- 4% Replacement with two leads and upgrade
- 4% Downgrading to VVIR

VDD Pacing Survival



Single Pass Lead Survival



Conclusions

- VDD pacemaker leads in the pediatric population are feasible and have reasonable longevity
- Rarely do these patients develop need for atrial, or biventricular pacing
- Long- term durability is about 68% in our experience
- This remains our centers lead of choice for this population