Low incidence of inappropriate shock in children with implantable cardioverter defibrillator. A single-institution experience.

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INTRODUCTION

Inappropriate shock of implantable cardiovecter defibrillator (ICD) is a major concern in pediatric population ranging from 20 to 50% in the literature. Its incidence is known to be more frequent this population, secondary to high incidence of lead failure, sinus or atrial tachycardia and over sensing.

We report a single-institution experience of IDC implantation in children with low incidence of inappropriate shock therapy.

PATIENTS & METHODS

Methods:

Retrospective study

Inclusion period: January 2003 to December 2010

Follow-up: mean 28 months (± 26 months)

Patients:	**24**
Age, median:	11 (4,5-16) years
Weight, median:	37 (19-60) kilogramms
Indications Primary prevention Secondary prevention	 10 (42%) 14 (58%)
Implantation technique Transvenous/Nonstandard	 10/14
Betablockers medication	19 (80%)
Programing VF detection rate > 200	 All but one

Figure 1: Associated cardiac disease

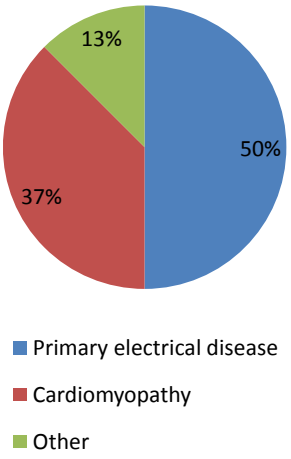
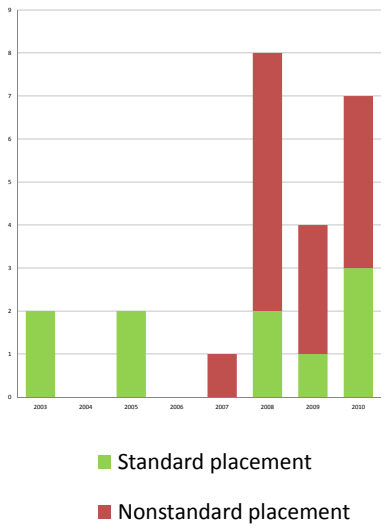


Figure 2: Implantation technique



RESULTS

At midterm follow-up, **only two patients received inappropriate shocks (8%)**, while 9 received appropriate ICD therapy (37%). Three patients had lead failure: a coil migration, an undersensing epicardial lead and an insulation break. Among those failing leads, one was placed transvenously and 2 by nonstandard approach. There was one intraoperative fatality reported on a 5 years old girl with restrictive cardiomyopathy, and another at adult age after heart transplant.

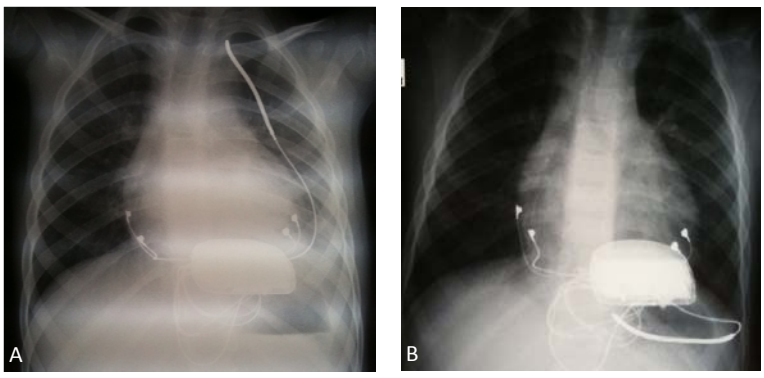


Image A: Nonstandard placement, defibrillator coil within the pleural space
Image B: Exemple of coil migration

CONCLUSION

Incidence of inappropriate shocks, and lead failure could be effectively decreased by nonstandard placement in children under 40 kilograms, by beta-blockers medication and by personalized programing as reported in this series.

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