



MORTALITY WITH COMBINED CARDIAC RESYNCHRONIZATION AND IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR THERAPY IN HEART FAILURE

Eduardo G. Bertoldi*, Carisi A Polanczyk, Vivian Cunha,
Patrícia K Ziegelmann, Luís Beck-da-Silva, and Luis E P Rohde

Federal University of Rio Grande do Sul, Brazil

National Institute of Science and Technology for Health Technology
Assessment (IATS), Brazil

Conflicts of interest



- None to disclose

Background



- Heart Failure (HF) – Device Therapy
 - Cardiac Resynchronization Therapy (CRT)
 - Implantable Cardioverter-Defibrillator (ICD)
 - Combination Therapy (CRT + ICD)
- Costly → Cost-effective?

- Project: C-E study on devices for HF

Economic Evaluation



- Costs of devices → Brazilian Public Health System
- Prognosis of patients with HF → local data

Economic Evaluation



- Impact of devices →
 - CRT vs. no device
 - CRT + ICD vs. ICD alone
 - Device-related complications

CRT+ICD vs. ICD



- Symptom improvement
- Impact on mortality?
- NYHA classes?

CRT+ICD vs. ICD



Previous studies: indirect comparison



Conflicting results

- Freemantle N et al. Eur J Heart Fail 2006;8(4):433-40.
- McAlister FA et al. Ann Intern Med 2004;141(5):381-90
- Lam SK et al. BMJ 2007;335(7626):925.

Objectives



- Reliable estimate of benefit from devices
- Range for sensitivity analysis
- Pooled estimate of risk of device-related complications
- Impact on different NYHA classes

Methods



- Systematic review and meta-analysis
- Search: Medline – Embase – Cochrane

Methods

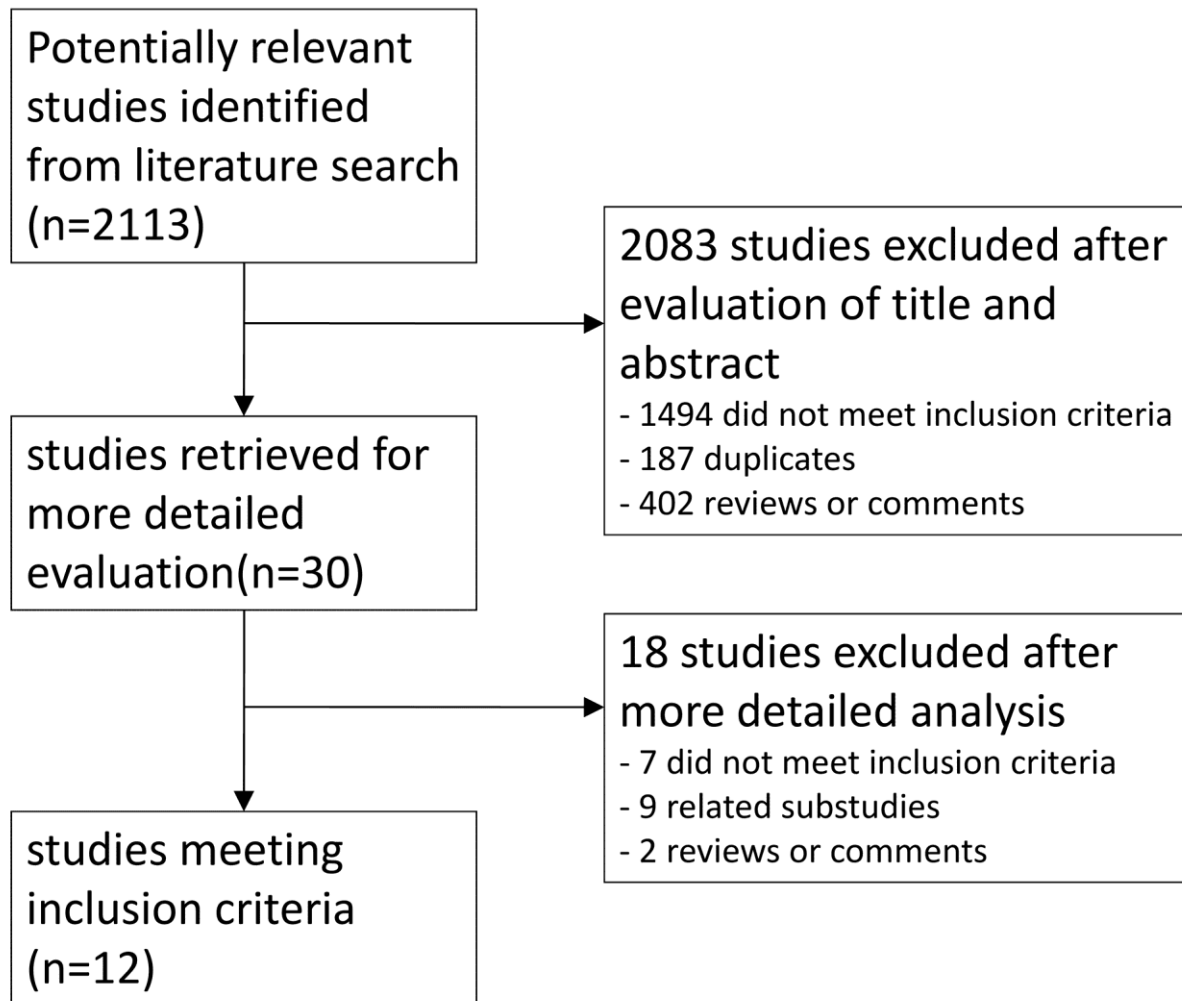


- Review Manager 5.0 – STATA v.11
- Random-effects model
- Inverse variance → risk ratio

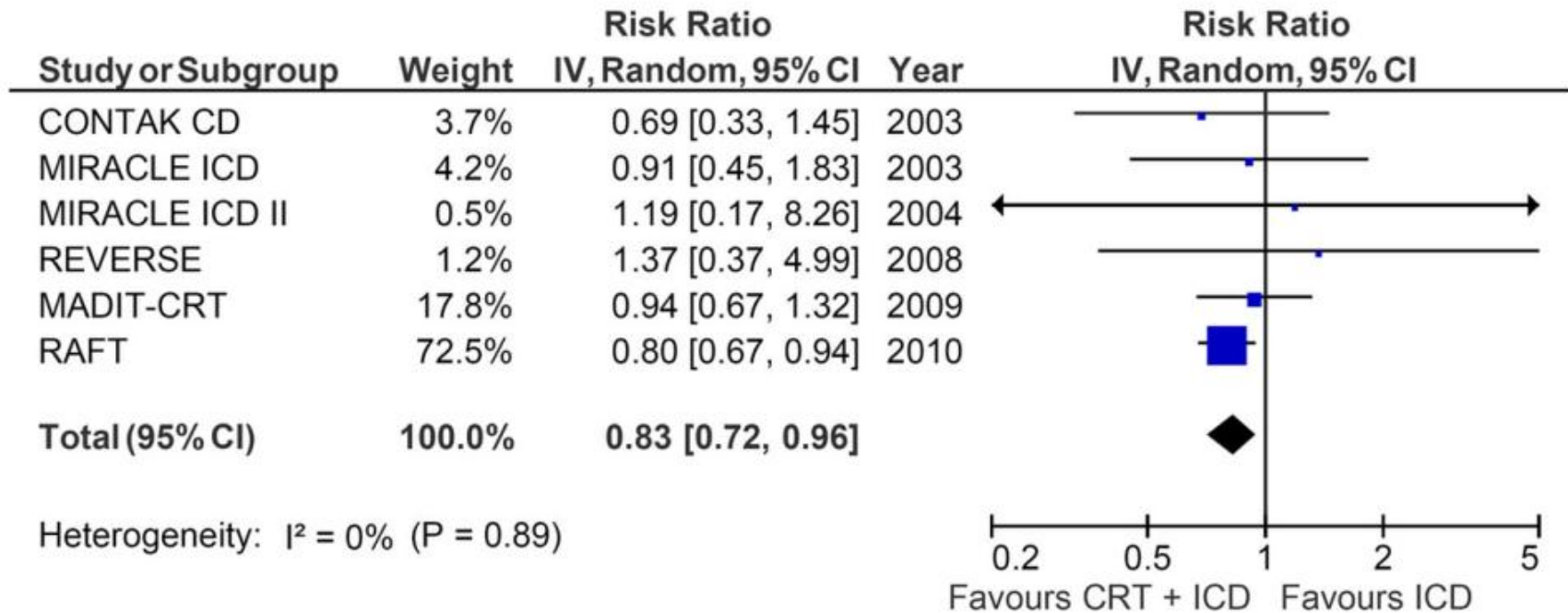
Methods



- Complications: single-branch meta-analysis
- Tests for heterogeneity and I^2
- Funnel Plots



Mortality - CRT+ICD vs. ICD

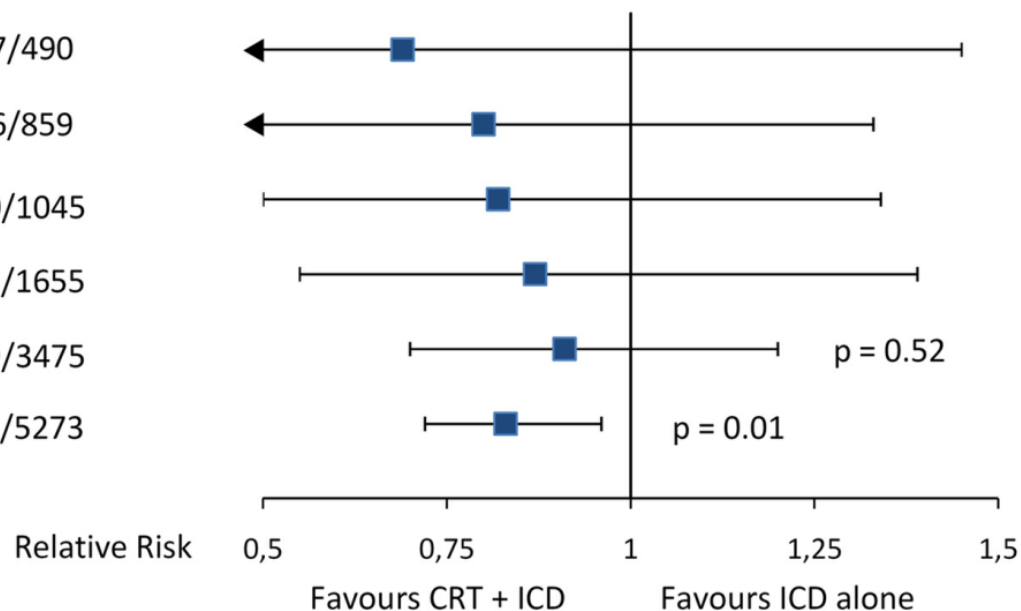


Cumulative meta-analysis

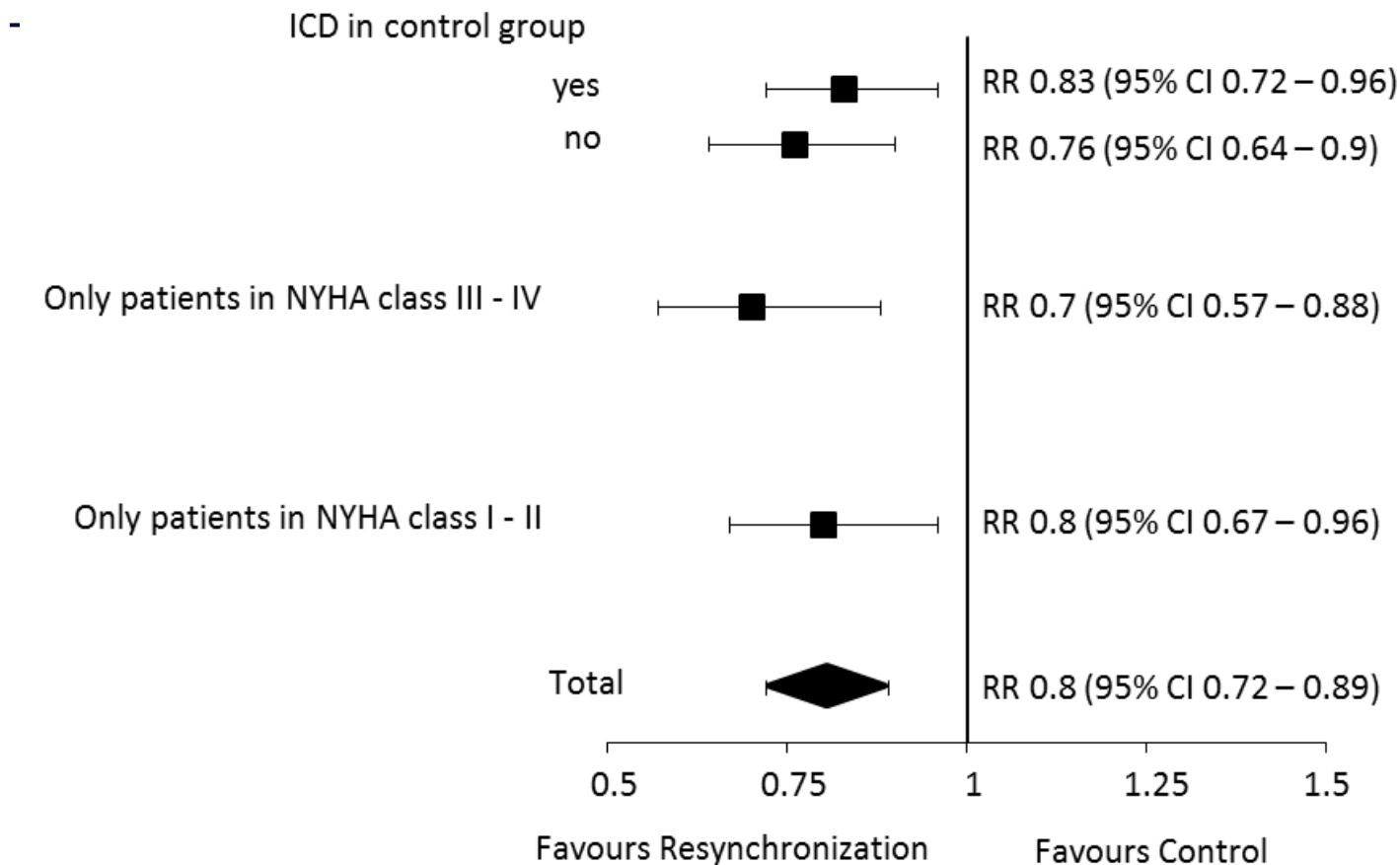


All Cause Mortality - CRT+ICD vs. ICD alone (Cumulative Meta-Analysis)

Study - Year	Cumulative Events / N
CONTAK CD - 2003	27/490
MIRACLE ICD - 2003	56/859
MIRACLE ICD II - 2004	60/1045
REVERSE - 2008	72/1655
MADIT-CRT - 2009	199/3475
RAFT - 2010	621/5273



All-Cause Mortality - Resynchronization vs. Control



CRT-related complications



Single-branch meta-analysis

Complication	Rate (Absolute)	95% CI
Implant Failure	8%	6% – 11%
Any Major Complication	13.2%	7.3% – 23.9%
LV Lead Complication	3%	1% – 8.7%

Conclusions

- Recent trials included → 4,228 patients added to the analysis
- CRT vs. medical therapy
- CRT + ICD vs. ICD



Mortality
reduction

Conclusions



- Benefit consistent among NYHA classes
- Point estimate for device-related complications

SR for econ. evaluation



- Summarize / unify results of trials
- Robust evidence
- Results in subgroups

End-result



Please see our poster!
(M-099)



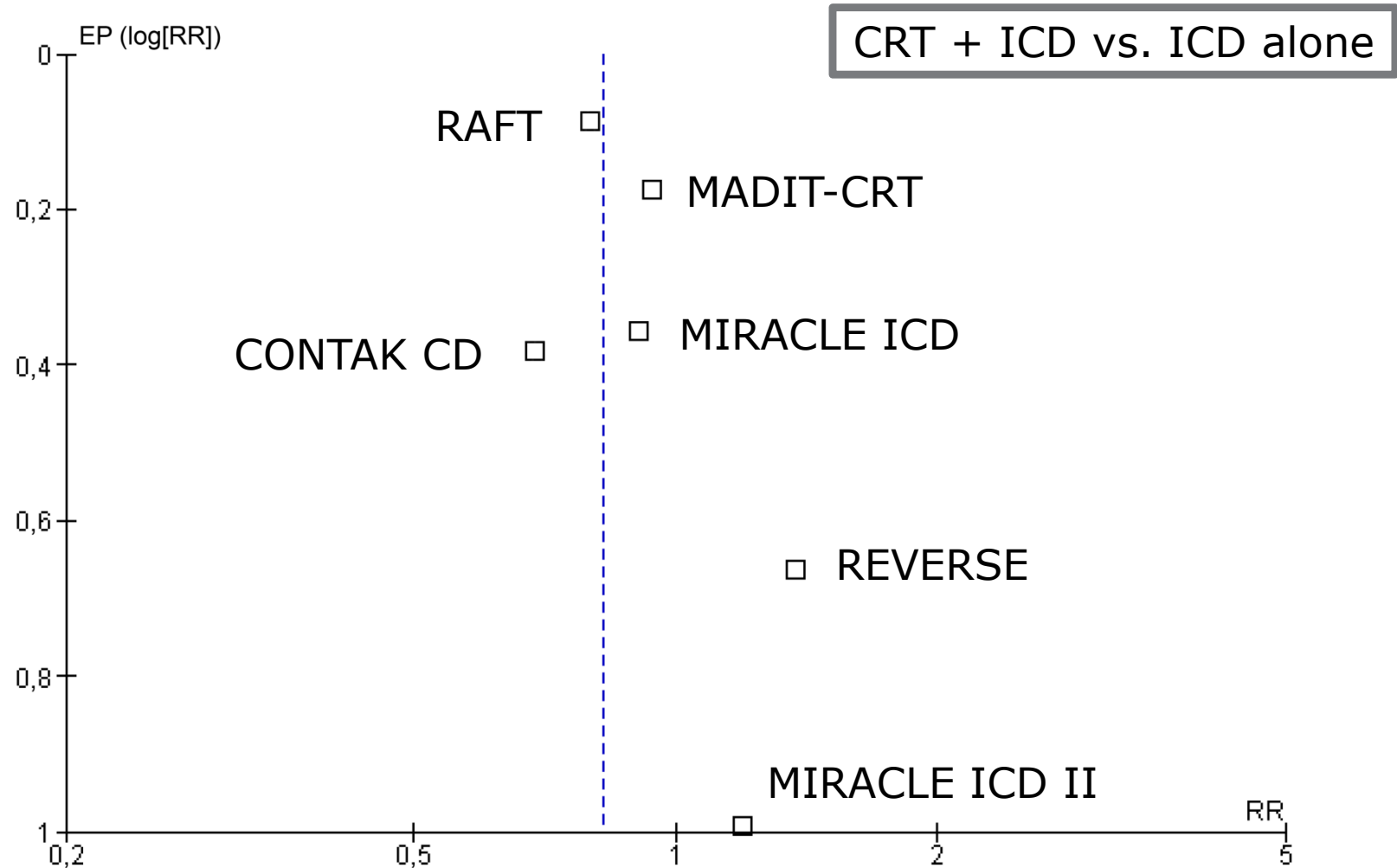
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Funnel Plot



Funnel Plot

CRT vs. medical therapy

