IS DIABETES MELLITUS A PREDICTOR OF WORSE RESPONSE TO CARDIAC RESYNCHRONIZATION THERAPY?

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1.INTRODUCTION

The benefit of cardiac resynchronization therapy (CRT) largely varies among patients. Some individual characteristics such as QRS duration of ≥150 ms, left bundle-branch block, female sex, non-ischemic disease, body mass index <30 kg/m^2 and smaller baseline left atrial volume index are predictive of better response to CRT therapy. Diabetes mellitus (DM) is an established risk factor of increased morbidity and mortality in patients with heart failure (HF). The present study **aimed to evaluate the influence of DM in patient response to CRT therapy**, in order to determine if diabetic patients have worse outcomes and response than non-diabetic patients.

2. METHODS

Retrospective study based on the analysis of patients who implanted a CRT device between January 2014 and December 2018 in the district hospital of Santarém. The analysis was **dichotomized according to whether or not patients were diabetic at the start of the device therapy**. We defined as superresponders patients who had a recovery of ≥10% in left ventricular ejection fraction (LVEF). We defined non-responders as patients whose LVEF decreased after 12 months of CRT therapy. The following **endpoints were evaluated after 12 months** of CRT therapy: **Proportion of superresponders and non-responders**, **variation in LVEF, improvement in New York Heart Association (NYHA) functional class**, **death of all causes** and **hospital admission due to HF**.
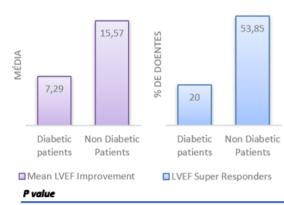
4. CONCLUSION

The proportion of superresponders and LVEF recovery after 12 months of CRT therapy were significantly lower in the diabetic patients group, thus **suggesting that DM could be a predictor of worse response to CRT therapy**. Adequately powered trials are needed in order to access the relevance of these findings.

3. RESULTS

Table1. Characteristics of the patients

Variable	Total Population n. º (%) n= 64	Diabetic Patients n. º (%) n= 31 (48,4%)	Non-Diabetic Patients n.º (%) n=33 (51.6%)	p value
Demographic				
Mean Age (years) ±SD	71.22 ± 9.87	71.29± 8.31	71.15±11.27	0.956
Male	47 (73.40)	23 (74.19)	24 (72.72)	0.894
Baseline				
Mean FEVE (%) ±SD	27.05±9.87	26.65±7.96	27.42±5.2	0.642
Mean QRS width ±SD*	166.74±20	169.03±21.28	164.59±18.81	0.393
Ischemic patients	24 (37.5)	15 (48.4)	9 (27.3)	0.080
Device (CRT-D)	52 (81.3)	26 (83.9)	26 (78.8)	0.603

*missing values

Table2. Primary Endpoints

Variable	Total Population n.º (%) (n= 64)	Diabetic Patients n.º(%) (n= 31)	Non Diabetic Patients n.º (%) (n=33)	p value
Mean LVEF Improvement±SD*	11.09±10.34	7.29±9.71	14.57±9.84	**0.018**
LVEF Super responders*	19 (37.25)	5 (20)	14 (53.85)	**0.012**
LVEF Non responders*	4 (7.84)	3 (12)	1 (3.85)	0.312
NYHA Improvement*	46 (79.31)	22 (75.86)	24 (82.76)	0.517
Hospital admission due to HF*	10 (16.39)	7 (23.33)	3 (9.69)	0.182
Death of all causes	7 (10.9)	3 (9.68)	4 (12.12)	0.754

*missing values

Figure 1. Primary Endpoints

	Mean LVEF Improvement	LVEF Super Responders
Diabetic patients	7,29	20
Non Diabetic Patients	15,57	53,85

P value: 0,018 — 0,012