

Early- and late-onset arrhythmias after bioelectrical impedance analysis in end-stage heart failure patients under inotropic support

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Objectives

Bioelectrical impedance analysis (BIA) is a painless and safe way to measure body composition without radiation. It is feasible in immobile patients and may serve as a measure to assess frailty¹.

BIA may lead to electromagnetic interference with the conduction system of the heart, provoking oversensing in pacemakers and internal cardiac defibrillators or arrhythmias².

End-stage heart failure patients are at highest risk for these possible side effects. The aim of this study was to evaluate the safety of BIA in end-stage heart failure patients under pro-arrhythmogenic pharmacologic therapy.

Methods

We performed 56 BIA measurements in 32 hospitalized patients (28 male, 4 female), suffering from advanced heart failure (20 DCMP; 10 ICMP; 2 other), under ECG monitoring.

Twenty-five patients were in need of inotropic support during the measurements. Their mean Inotropic Score³ was 10.03 (+/- 7.15).

During 31 BIA measurements, the patient had an implantable cardiac device (ICD, pacemaker or CRT) in place; 1 patient had an external defibrillator (LifeVest). Thirty-nine measurements were performed while the patient was on ongoing antiarrhythmic therapy treatment. During 36 assessments, the patients received supplementary potassium and during 12 evaluations, the patients were treated with other medications such as ivabradine or magnesium.

Inotropic support and antiarrhythmic medication are displayed in figures 1 and 2.

Results

None of the patients showed any signs of clinically relevant arrhythmias following the BIA under ECG monitoring for 48 hours, but some coincidental ventricular extrasystoles were observed. No device malfunction was seen, especially no oversensing in ICDs resulting in inadequate shocks.

Conclusions

BIA measurements can be performed safely in end-stage heart failure patients with pro-arrhythmogenic pharmacologic therapy, despite being very vulnerable to arrhythmias.

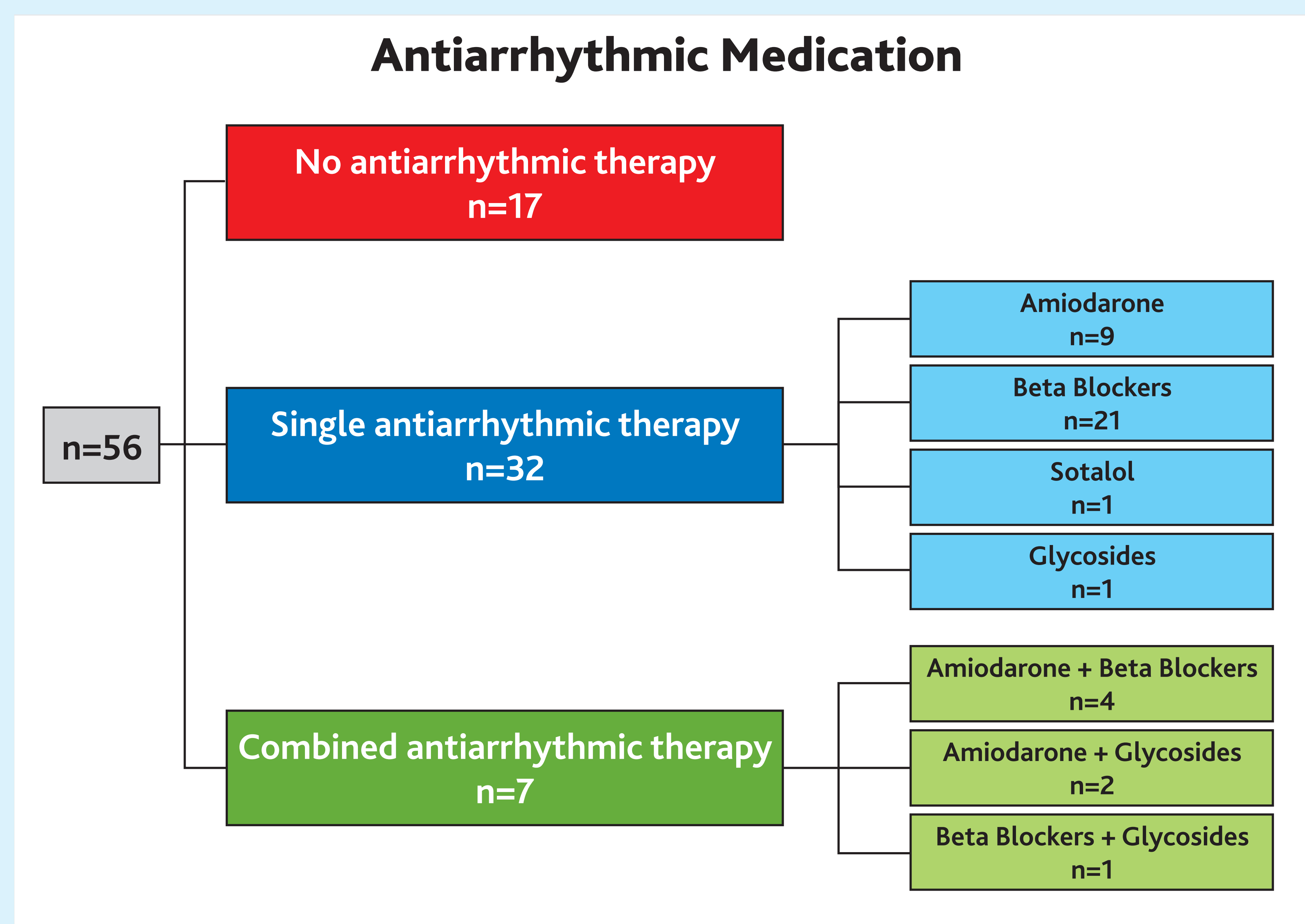


Figure 1: Antiarrhythmic Medication

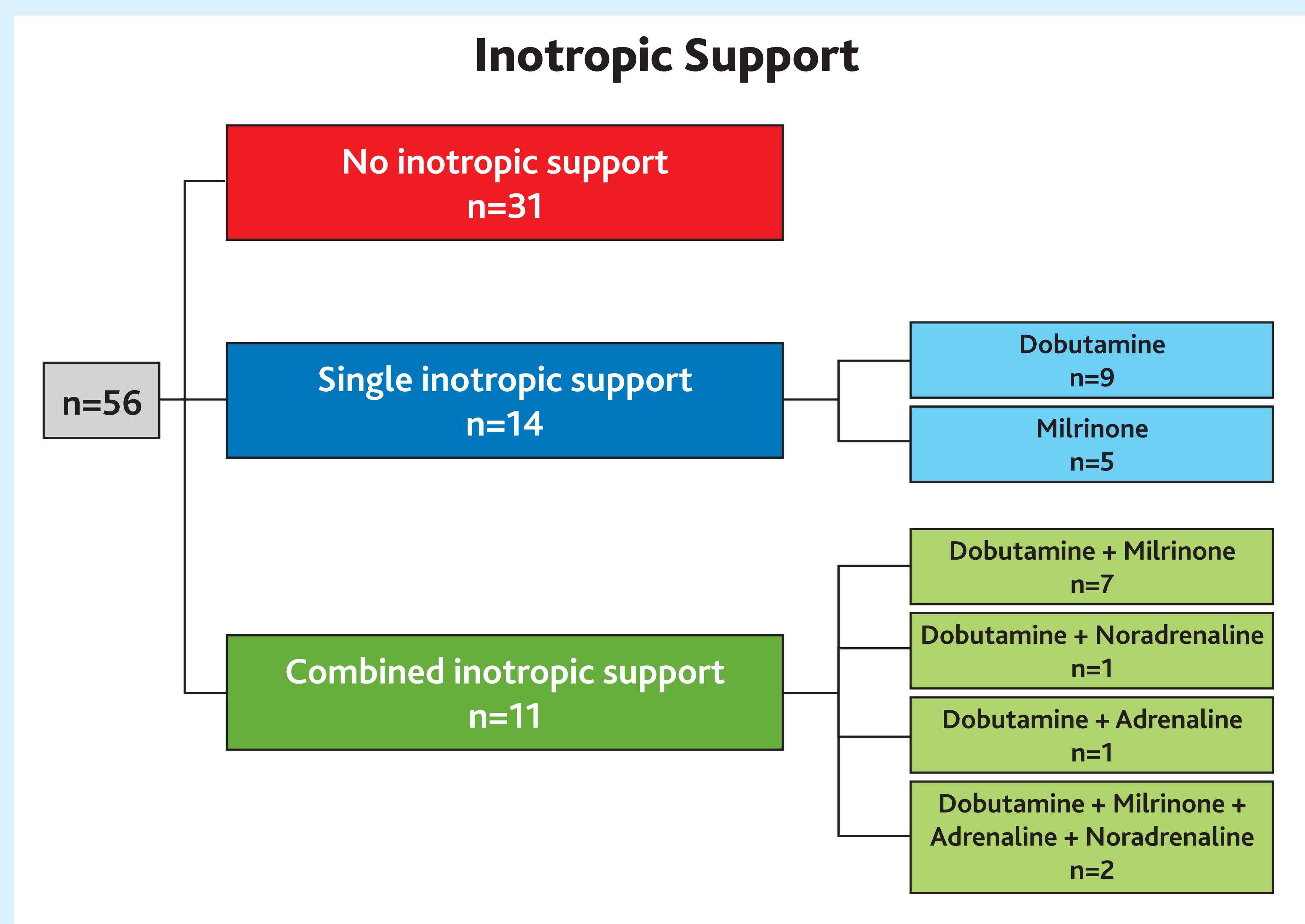


Figure 2: Inotropic Support

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