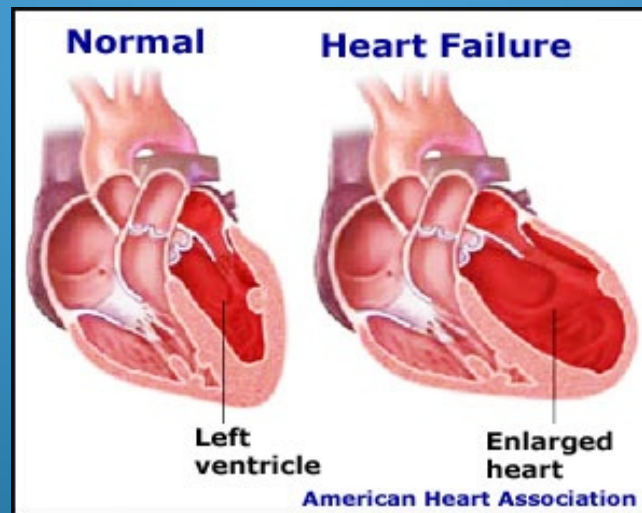


Prognosis of Heart failure treated with digoxin vs ivabradine





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Prognosis of heart failure treated with digoxin or with ivabradine: A cohort study in the community

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Summary

Background: Resting heart rate (HR) reduction with ivabradine (IVA) improves outcomes of patients with heart failure and reduced ejection fraction (HFrEF). Nevertheless, the best option to slow HR in patients with HFrEF treated with beta-blockers and a HR >70 bpm is unsettled.

Aims: To evaluate whether, in patients with HFrEF, commencing therapy with digoxin (CT-DIG) is associated to a worse prognosis than commencing treatment with ivabradine (CT-IVA).

Methods: Observational study over 10 years on 2364 patients with HFrEF in sinus rhythm and a HR >70 bpm. Main outcomes were mortality, hospitalisations and visits. We analyse the independent relationship of CT-DIG or CT-IVA with the prognosis,

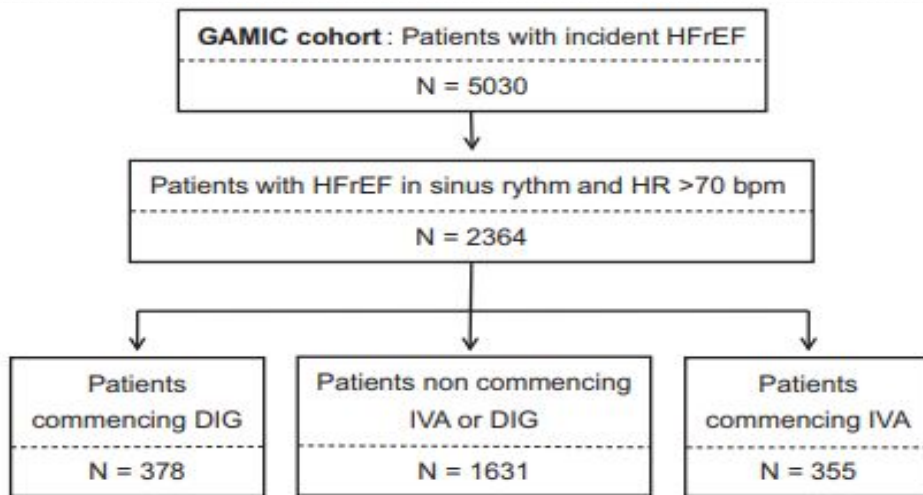
This analysis is meant to assess the relationship of the treatment with ivabradine vs the one with digoxin and the comparison of the mortality and morbidity of patients with heart failure and reduced ejection fraction with sinus rhythm

introduction

- The elevation of heart rate was reported to increase the cardiovascular risk in the FRAMINGHAM STUDY .
- An increase of mortality by 14% to 17% at every 10 bpm increase in Heart Rate of more than 80 bpm.
- Most patients with HF are taking several medications :ACEI or ARA ,beta blocker, diuretic . The further improve prognosis , their resting HR should be kept under 75-80bpm .in addition to bb the option to reduce HR are cardiac glycosides acting on the cellular sodium-potassium ATPase pump Or ivabradine $\text{Na}^+ - \text{K}^+$ inward current since calcium antagonists are not indicated in HFrEF.

Methods

Observational study of cohort of patients diagnosed for the first time with HFrEF (5030 patients) during 10years



DIG: Digoxin. IVA: Ivabradine. HFrEF: Heart failure with reduced ejection fraction. HR: Resting heart rate.

Inclusion criteria :

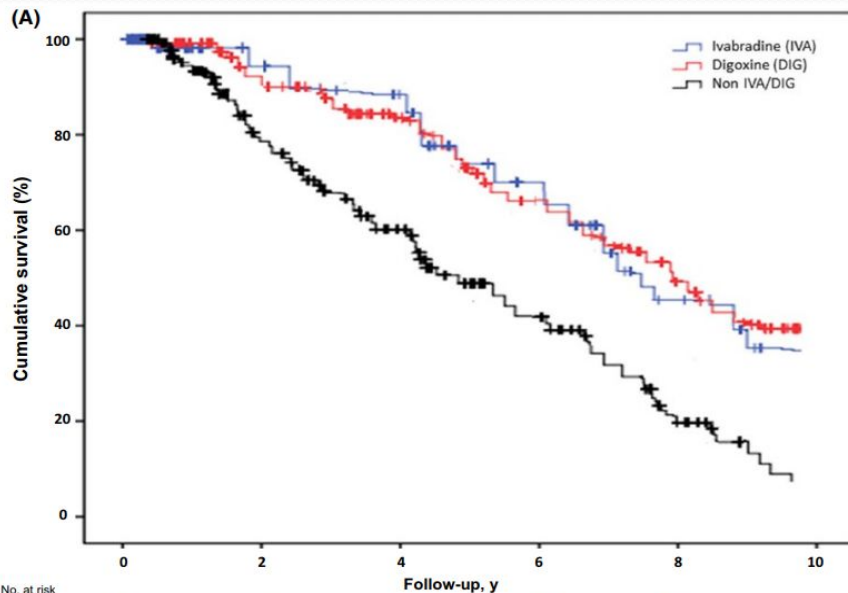
- Adults >14 years with HFrEF (<50%)
- sinus rythm
- HR> 70bpm
- resident in the community of cadiz spain

Duration of the study : 57.5+-13.7 monthes . 2364 patients were in sinus rythm (47%). 378 patients (16%) commenced ttt with digoxin, 355 patients (15%) commenced with ivabradine ,and 1631 patients were not exposed to IVA or DIG

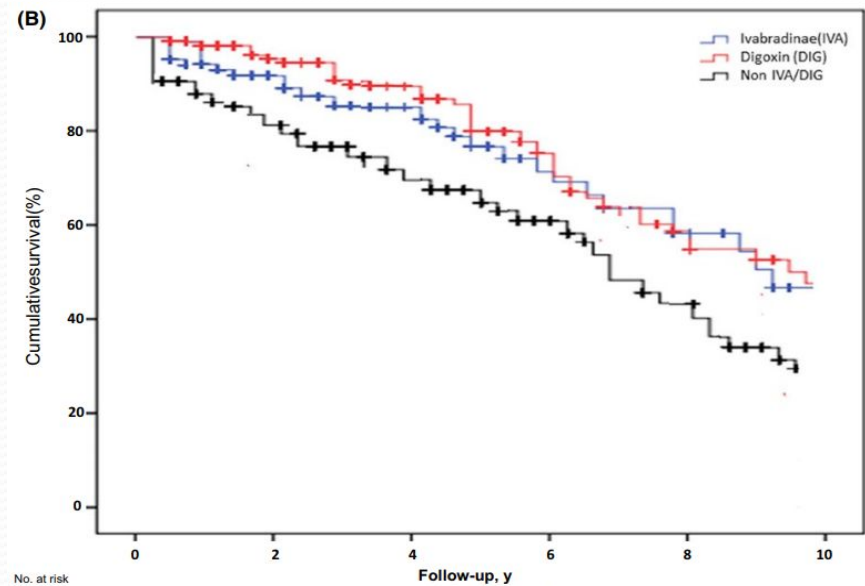
- Mean the daily dose of IVA /12.6 +- 1.2 mg
- The daily dose of digoxin (up to 0.25 mg) on basis of age ,sex,weight and serum creatinine level , to obtain serum digoxin concentration under 1.0ng/ml → Mean daily dose of digoxin was 0.083+- 0.012 mg . Median serum digoxin concentration was 0.73 +- 0.05 ng/ml

Results

- During a median follow-up of 57.5 +/- 13.7 months, 2151 (91.0%) were hospitalised for worsening heart failure, 1751 patients (74.1%) died .
- In comparison with patients non exposed to digoxin or ivabradine, the survival of patients with HFrEF who received DIG or IVA was significantly higher (figA)
- The beneficial effects of digoxine or ivabradine therapy on the survival of patients were mainly because of a reduction of cardiovascular mortality (fig B)

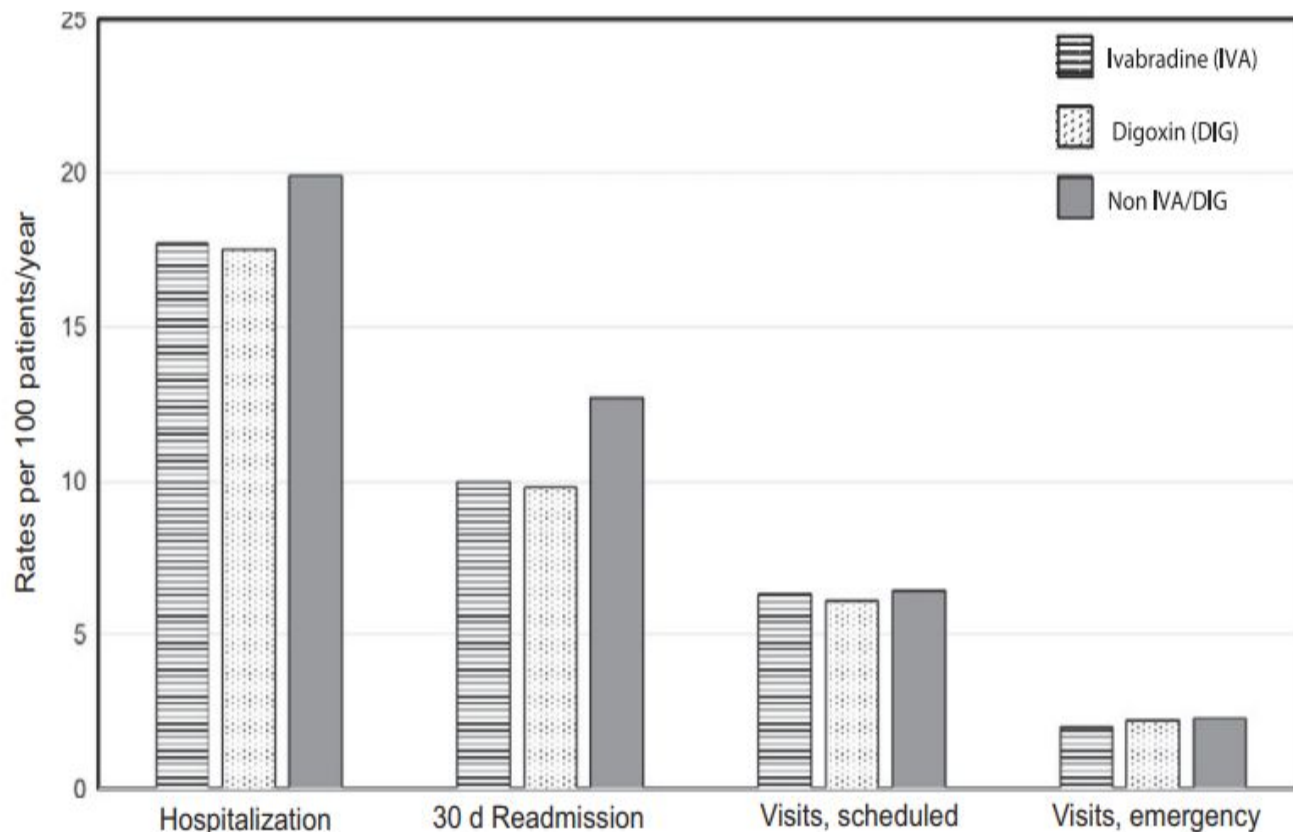


No. at risk	0	2	4	6	8	10
Ivabradine, yes	355	307	293	224	172	138
Digoxin, yes	378	316	274	234	178	136
IVA or DIG, no	1634	1305	1060	758	408	245



No. at risk	0	2	4	6	8	10
Ivabradine, yes	355	334	320	264	204	167
Digoxin, yes	378	361	316	268	206	168
IVA or DIG, no	1634	1330	1109	987	685	375

- The rate of hospitalisation adjusted by age and sex was lower in patients treated with digoxin (17.0) or with ivabradine (17.5) than in those not exposed to DIG or IVA (19.9).
- The rate of 30-day readmissions was lower in patients treated with digoxin (9.6) or with ivabradine (10.2) than those non-exposed to DIG or IVA (12.7)
- The rate of out patients and emergency visits were not different



DISCUSSION

- Digoxin
 - ↘ 12% risk of all-cause death
 - ↘ 15% risk of death from cardiovascular causes
 - ↘ 10% hospitalisation
 - ↘ 14% 30 day-readimssion

- ivabradine
 - ↘ 10 % risk of all-cause death
 - ↘ 13% risk of death from cardiovascular causes
 - ↘ 9% hospitalisation
 - ↘ 14% 30 day-readmission

CONCLUSION

- Digoxin and ivabradine has similar effects on the prognosis of HFrEF , reducing mortality ,hospitalisation and 30 days readmission .