Ivabradine as Adjuvant Treatment for Chronic Heart Failure

Is ivabradine effective and safe in individuals with chronic heart failure?

**Background**

Heart failure with reduced ejection fraction (HFrEF) has a 50% mortality within 5 years.

Drugs that ↓ mortality in HFrEF:
- 1- ACE inhibitors
- 2- Beta-blockers
- 3- Aldosterone antagonists

**Ivabradine** selectively slows heart rate by inhibiting $I_f$-channels at the SA node, reducing rate of depolarization.

This allows more time for blood and oxygen to flow to the myocardium.

Unlike beta-blockers, it does not decrease heart contractility.

**Methods**

Literature search identified 19 randomized clinical trials with 19,628 patients.

- 69% male
- Mean age 60.76

4 meta-analyses compared outcomes in:
- short term (<6 mo) or long term (>6 mo) ivabradine treatment
- HFrEF or HFpEF or HFmrEF

**Outcomes**

Long term ivabradine treatment compared to usual care, placebo, or no care found:

- Evidence of no difference in mortality (RR 0.99, CI 0.88-1.11) from cardiovascular events
- No evidence of difference in serious adverse events (RR 0.96, CI 0.92-1.00)

Insufficient data for meta-analysis of outcomes in short term ivabradine treatment in HFrEF & short or long term treatment in HFpEF

**Limitations**

- Meta-analysis was limited by trial heterogeneity in type of heart failure, dosage & duration of ivabradine treatment, and outcomes measured
- Only 4/19 studies had an adequately treated control arm
- Evidence strength is moderate due to male predominance

Creators:  
Annika Lee MS3 @Annika_Lee_  
Sanjana Verma MS3 @sverma46  
Rewiewer: Caroline Coleman MD @cg_coleman

March 7, 2021