Do beta-blockers improve mortality post MI?

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Do BB improve the morality post MI?

- Yes
- No
- I don't know
- All of the above

If your answer is yes,

- Do you give it all patients with MI?
- Is it oral?
- IV?
- When do you give it and for how long?
- Which BB you give?

How BB works?

- ↓O2 demand (↓HR, BP, contractility)
- ↓ VF, cardiac death.
- Bradycardia prolonged diastole that improve coronary perfusion.
- ↓Remodeling, better hemodynamic LVF .
- ↓Progression of coronary atherosclerosis

BB and MI

- Reduction in all causes of mortality
- Cardiovascular mortality
- MI
- Angina

BB and MI

- ACC/AHA : STEMI

  class I : oral BB
  class 11a: IV for pt. with HTN and angina

- Accreditation bodies : quality indicator


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What is the evidence?

- Best BETs, 2009. Morgan Garvin
- In adults with ACS is early administration of BB more effective than withholding a BB at reducing in-hospital mortality?
- 512 papers
- 2 relevant papers

Clinical Bottom Line

- Early use of beta blockers (within 48 hours of presentation) significantly reduces short-term mortality in many patients with ACS. Beta-blockers should not be given early to patients at increased risk for cardiogenic shock – those who present with SBP <120, HR >110 or Killip Class II-IV CHF.

What is the evidence?

Clinical Outcomes with β-Blockers for Myocardial Infarction: A Meta-analysis of Randomized Trials

Sripal Bangalore, MD, MHA,[a] Harikrishna Makani, MD,[b] Martha Radford, MD,[a] Kamia Thakur, MD,[a] Bora Toklu, MD,[c] Stuart D. Katz, MD,[a] James J. DiNicolantonio, PharmD,[d,e] P.J. Devereaux, MD, PhD,[f] Karen P. Alexander, MD,[g] Jorn Wetterslev, MD, PhD,[h] Franz H. Messerli, MD[b]

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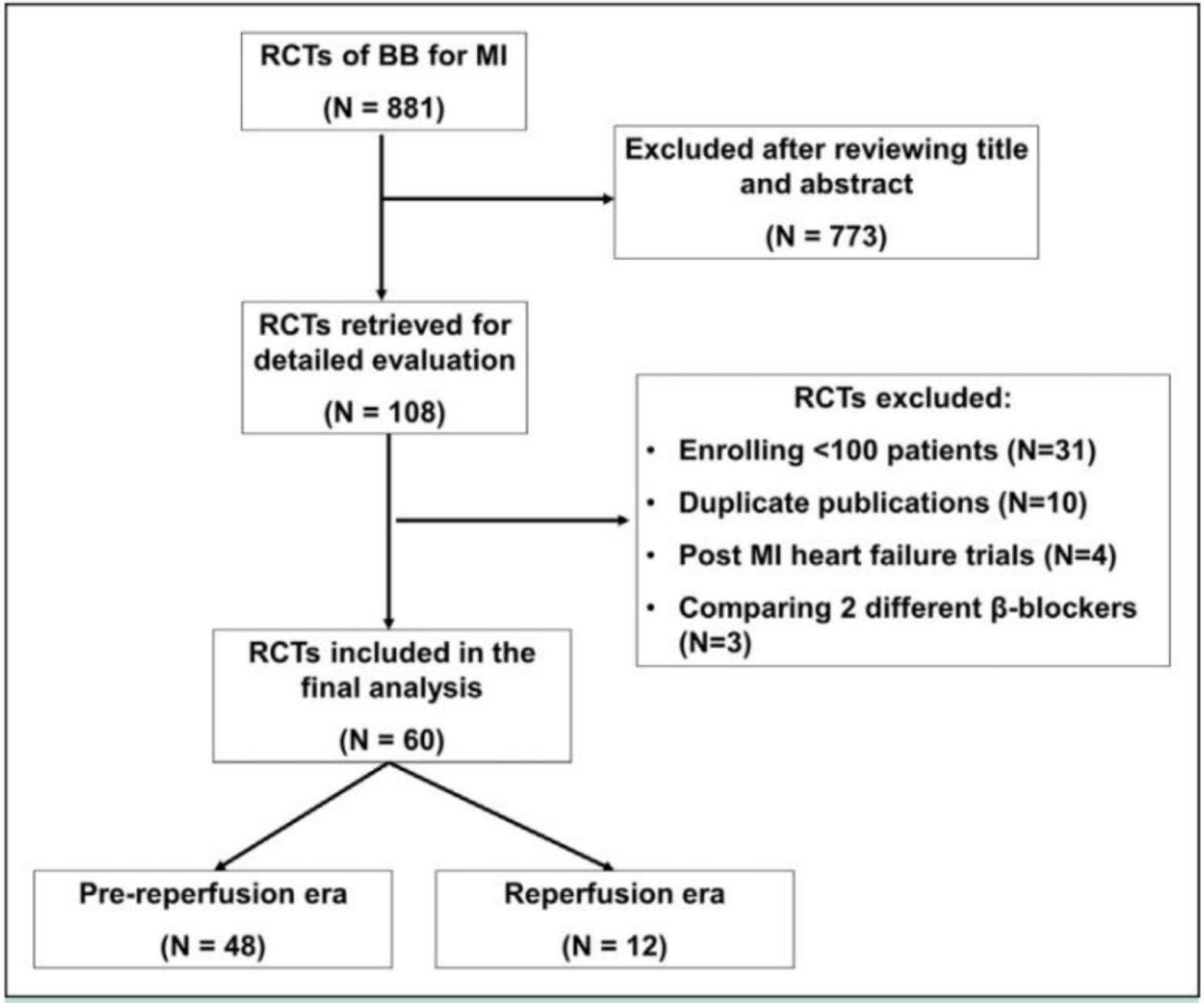
RCTs of BB for MI
(N = 881)
Excluded after reviewing title and abstract
(N = 773)
RCTs retrieved for detailed evaluation
(N = 108)
RCTs excluded:
• Enrolling <100 patients (N=31)
• Duplicate publications (N=10)
• Post MI heart failure trials (N=4)
• Comparing 2 different β-blockers (N=3)
RCTs included in the final analysis
(N = 60)
Pre-reperfusion era
(N = 48)
Reperfusion era
(N = 12)

Bangalore et al.

- Primary outcome all cause of mortality
- Secondary outcomes: cardiovascular mortality, angina,HF, cardiogenic shock, stroke.
- Acute MI : first 48hrs
- Reperfusion era studies: more than 50% of patients had thrombolytic, revascularization, or aspirin/ statin.

Pre-perfusion Era

IV beta blockers:

- 14% RR in all cause mortality
- 13% RR in cardiovascular mortality
- 22% reduction in MI
- 12% reduction in angina
- No increase in HF and cardiogenic shock

Reperfusion Era

- 28% reduction in MI
- 20 % reduction in angina
- No mortality benefit
- 10% increase risk in HF
- 29% increase risk in cardiogenic shock

Why?

- Lake of sufficient power to detect a mortality difference.
- Lake of reperfusion and modern medical therapy(anticoagulants and statins)
- Extensive myocardial scarring
- Reperfusion reduces scars forming.

Studies Conclusion

- BB have no mortality benefits
- Short term reduction in recurrent MI and angina.
- Increase in HF, cardiogenic shock.
- Risk/benefit ratio not favorable.

What is the answer?

- No mortality benefits
- Harm
- Selective