

Beta Adrenergic Blockers

Key Questions and Inclusion Criteria

Update #4

Key Questions

1. For use in adult patients for hypertension, angina, coronary artery bypass graft, recent myocardial infarction, heart failure, atrial arrhythmia, migraine prophylaxis or bleeding esophageal varices, do beta blocker drugs differ in effectiveness/efficacy?
2. For use in adult patients for hypertension, angina, coronary artery bypass graft, recent myocardial infarction, heart failure, atrial arrhythmia, migraine prophylaxis or bleeding esophageal varices, do beta blocker drugs differ in harms?
3. Are there subgroups of patients based on demographics (age, racial groups, gender), other medications (drug-drug interactions), or co-morbidities (drug-disease interactions) for which one beta blocker is more effective/efficacious or associated with fewer adverse effects?

Inclusion Criteria

Populations

Use in adult patients for hypertension, angina, coronary artery bypass graft, recent myocardial infarction, heart failure, atrial arrhythmia, migraine prophylaxis or bleeding esophageal varices

Interventions

Interventions include an oral beta blocker compared with another beta blocker, another drug (such as calcium channel blocker), or placebo.

Oral beta blockers include:

Acebutolol

Atenolol

Betaxolol¹

Bisoprolol

Carvedilol

Carvedilol phosphate¹

Labetalol

Metoprolol tartrate

Metoprolol succinate¹

Nadolol

Nebivolol¹

Penbutolol¹

Pindolol

Propranolol

Propranolol LA

Timolol

¹ Not available in Canada

Effectiveness/efficacy outcomes

Hypertension	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Cardiovascular events (stroke, myocardial infarction, or development of heart failure) 3. End-stage renal disease (including dialysis or need for transplantation) or clinically significant and permanent deterioration of renal function (increase in serum creatinine or decrease in creatinine clearance) 4. Quality-of-life
Chronic stable angina (treatment duration ≥ 2 months)	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Cardiovascular events (stroke, myocardial infarction, or development of heart failure) 3. Symptoms (e.g., attack frequency, nitrate use, exercise tolerance, etc.) 4. Quality-of-life
Post-coronary artery bypass graft (long-term treatment)	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Ischemic events (MI, unstable angina, need for repeat CABG and PTCA) 3. Quality-of-life
Recent myocardial infarction (with and without LV dysfunction)	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Cardiovascular events (usually, development of heart failure) 3. Quality-of-life
Symptomatic chronic heart failure	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Symptomatic improvement (heart failure class, functional status, visual analogue scores) 3. Hospitalizations for heart failure 4. Quality-of-life
Asymptomatic LV dysfunction	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Cardiovascular events (usually, development of heart failure) 3. Quality-of-life
Atrial arrhythmia	<ol style="list-style-type: none"> 1. All-cause and cardiovascular mortality 2. Stroke 3. Symptoms (rate control, relapse into atrial fibrillation) 4. Quality-of-life
Migraine prophylaxis	<ol style="list-style-type: none"> 1. Attack frequency, intensity/severity, duration 2. Use of abortive treatment 3. Quality of life
Bleeding esophageal varices	<ol style="list-style-type: none"> 1. All-cause mortality 2. Fatal/non-fatal rebleeding 3. Quality-of-life

Harms

- Overall adverse events
- Withdrawals due to adverse events
- Specific adverse events

Study designs

1. For effectiveness/efficacy, randomized controlled trials and good-quality systematic reviews
2. For harms, controlled clinical trials and observational studies