Are We Misunderstanding β-blockers?! 

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Compelling Indications for Individual Drug Classes

<table>
<thead>
<tr>
<th>Compelling Indication</th>
<th>Initial Therapy Options</th>
<th>Clinical Trial Basis</th>
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</thead>
<tbody>
<tr>
<td>Heart failure</td>
<td>THIAZ, BB, ACEI, ARB, ALDO ANT</td>
<td>ACC/AHA Heart Failure Guideline, MERIT-HF, COPERNICUS, CIBIS, SOLVD, AIRE, TRACE, ValHEFT, RALES</td>
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<tr>
<td>Postmyocardial infarction</td>
<td>BB, ACEI, ALDO ANT</td>
<td>ACC/AHA Post-MI Guideline, BHAT, SAVE, Capricom, EPHEsus</td>
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<tr>
<td>High CAD risk</td>
<td>THIAZ, BB, ACE, CCB</td>
<td>ALLHAT, HOPE, ANBP2, LIFE, CONVINCE</td>
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Current Status of BB

BB in HF  +++
BB in CHD +++
BB in HTN  ???

Pathophysiology

β-blockers

<table>
<thead>
<tr>
<th>Parameter</th>
<th>BB in HF</th>
<th>BB in CHD</th>
<th>BB in HTN</th>
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<tbody>
<tr>
<td>Sympathetic activity</td>
<td>+++</td>
<td>+</td>
<td></td>
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<tr>
<td>Cardiac output</td>
<td>+++</td>
<td>+</td>
<td></td>
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<tr>
<td>Arterial compliance</td>
<td>+++</td>
<td>+</td>
<td></td>
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<tr>
<td>Vascular resistance</td>
<td>+</td>
<td>+</td>
<td>+++</td>
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Re-examining the efficacy of β-blockers for the treatment of hypertension: a meta-analysis

Nadia Khan, Finlay A. McAlister

CMAJ • JUNE 6, 2006 • 174(12) | 1737

Interpretation: β-blockers should not be considered first-line therapy for older hypertensive patients without another indication for these agents; however, in younger patients β-blockers are associated with a significant reduction in cardiovascular morbidity and mortality.

ESC and ESH Guidelines

† 2007 Guidelines for the management of arterial hypertension

Five major classes of antihypertensive agents – thiazide diuretics, calcium antagonists, ACE inhibitors, angiotensin receptor antagonists and β-blockers – are suitable for the initiation and maintenance of antihypertensive treatment, alone or in combination. β-blockers, especially in combination with a thiazide diuretic, should not be used in patients with the metabolic syndrome or at high risk of incident diabetes.
Initial therapy should be monotherapy with a thiazide diuretic (Grade A); a beta-blocker (in patients younger than 60 years of age, Grade B); an ACE inhibitor (in non-black patients, Grade B); a long-acting CCB (Grade B) or an ARB (Grade B). If there are adverse effects, another drug from this group should be substituted. Hypokalemia should be avoided in patients treated with thiazide diuretic monotherapy (Grade C).

Conclusions

- **β-blockers** are *first line* anti-HTN in the presence of *compelling indications* (CHD, HF)
- **β-blockers** still have a rule in uncomplicated hypertension in *younger patients*
- **β-blockers** will not be among the first line anti-HTN drugs in uncomplicated HTN in patients > 60 years
Conclusions cont.,

- β-blockers in combination with diuretics are not good option for patients with metabolic syndrome or dysglycemia
- β-blockers with vasodilatory properties (carvidolol and nebivolol) should be studied in the treatment of uncomplicated HTN instead of atenolol