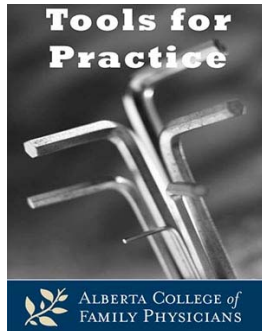


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Atenolol & Beta-blockers for primary hypertension: Do they perform under pressure?

Clinical Question:

Are beta-blockers, particularly atenolol, as effective as other anti-hypertensive medications in preventing important outcomes in hypertension?

Evidence

Two large meta-analysis have examined this question:

- 2004 meta-analysis¹ compared atenolol against other hypertensives (5 trials, 17671 patients) over a mean of 4.6 years
 - Atenolol was not statistically different in myocardial infarction but led to significantly more strokes (number needed to harm (NNH) 79) and deaths (NNH 110).
- 2005 meta-analysis² compared all beta-blockers against other hypertensives (13 trials, 105951 patients), over 2.7 - 10 years.
 - Beta-blockers statistically increased stroke compared to other blood pressure (NNH 461) medications. There were no differences in myocardial infarction or death.
 - The data combined was heterogeneous (differed quite widely) and pooling may be inappropriate.
 - When atenolol was examined, the results were the same as the previous meta-analysis¹
 - When non-atenolol beta-blockers were compared to other BP medications, there was no statistical difference in stroke, myocardial infarction, or death.

Context

- A 2006 meta-analysis³ stratified patients by age and concluded patients <60 benefit from beta-blockers similar to other medications but patients ≥60 have slightly worse cardiovascular outcomes on beta-blockers compared to other medications.
- A 2007 meta-analysis⁴ (13 trials, 91561 patients) and 2 reviews^{5,6} considered the evidence comparing beta-blockers to other hypertensive agents
 - All concluded evidence does not support the use of beta-blockers as first line agents in uncomplicated hypertension.⁴⁻⁶

- As 75% of the patients were in trials using atenolol, some concern remained regarding the limited evidence for/against non-atenolol beta-blockers.^{4,5}
- Guidelines recommend against beta-blockers as first line therapy for uncomplicated hypertension in general (UK)⁷ or specifically in patients ≥60 (Canada)⁸, unless there are co-morbid conditions which benefit from beta-blockers.
- Beta-blockers are highly effective and appropriate agents in some co-morbid conditions (such as post-myocardial infarction⁹ or cardiac failure¹⁰).

Bottom-line: Atenolol is an inferior choice for blood pressure treatment. Beta-blockers in general should not be considered first line in age ≥60 and some have suggested they should not be first line in any patient with uncomplicated hypertension.

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Tools for Practice is a biweekly article summarizing medical evidence with a focus on topical issues and practice modifying information. It is coordinated by G. Michael Allan, MD, CCFP and the content is written by practising family physicians. Archived articles are available on the Towards Optimized Practice and ACFP websites.

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