

Health outcomes associated with antihypertensive therapies used as first-line agents: a systematic review and meta-analysis.

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Health Outcomes Associated With Antihypertensive Therapies Used as First-Line Agents

A Systematic Review and Meta-analysis

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JAMA. 1997;277(9):739-745. doi:10.1001/jama.1997.03540330061036

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Abstract

Objective. —To review the scientific evidence concerning the safety and efficacy of various antihypertensive therapies used as first-line agents and evaluated in terms of major disease end points.

Data Sources. —MEDLINE searches and previous meta-analyses for 1980 to 1995.

Data Selection. –We selected long-term studies that assessed major disease end points as an outcome. For the meta-analysis, we chose placebo-controlled randomized trials. For randomized trials using surrogate end points such as blood pressure, we selected the largest studies that evaluated multiple drugs. Where clinical trial evidence was lacking, we relied on information from observational studies.

Data Synthesis. –Diuretics and β -blockers have been evaluated in 18 long-term randomized trials. Compared with placebo, β -blocker therapy was effective in preventing stroke (relative risk [RR], 0.71; 95% confidence interval [CI], 0.59-0.86) and congestive heart failure (RR, 0.58; 95% CI, 0.40-0.84). The findings were similar for high-dose diuretic therapy (for stroke, RR, 0.49; 95% CI, 0.39-0.62; and for congestive heart failure, RR, 0.17; 95% CI, 0.07-0.41). Low-dose diuretic therapy prevented not only stroke (RR, 0.66; 95% CI, 0.55-0.78) and congestive heart failure (RR, 0.58; 95% CI, 0.44-0.76) but also coronary disease (RR, 0.72; 95% CI, 0.61-0.85) and total mortality (RR, 0.90; 95% CI, 0.81-0.99). Although calcium channel blockers and angiotensin-converting enzyme (ACE) inhibitors reduce blood pressure in hypertensive patients, the clinical trial evidence in terms of health outcomes is meager. For several short-acting dihydropyridine calcium channel blockers, the available evidence suggests the possibility of harm. Whether the long-acting formulations and the nondihydropyridine calcium channel blockers are safe and prevent major cardiovascular events in patients with hypertension remains untested and therefore unknown.

Conclusion. –Until the results of large long-term clinical trials evaluating the effects of calcium channel blockers and ACE inhibitors on cardiovascular disease incidence are completed, the available scientific evidence provides strong support for the current national guidelines, which recommend diuretics and β -blockers as firstline agents and low-dose therapy for all antihypertensive agents.

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