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Effects of Intensive Blood Pressure Treatment on Orthostatic Hypotension

A Systematic Review and Individual Participant–based Meta-analysis



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Background:

Although intensive blood pressure (BP)–lowering treatment reduces risk for cardiovascular disease, there are concerns that it might cause orthostatic hypotension (OH).

Purpose:

To examine the effects of intensive BP-lowering treatment on OH in hypertensive adults. (PROSPERO: CRD42020153753)

Data Sources:

MEDLINE, EMBASE, and Cochrane CENTRAL from inception through 7 October 2019, without language restrictions.

Study Selection:

Randomized trials of BP pharmacologic treatment (more intensive BP goal or active agent) that involved more than 500 adults with hypertension or elevated BP and that were 6 months or longer in duration. Trial comparisons were groups assigned to either less intensive BP goals or placebo, and the outcome was measured OH, defined as a decrease of 20 mm Hg or more in systolic BP or 10 mm Hg or more in diastolic BP after changing position from seated to standing.

Data Extraction:

Two investigators independently abstracted articles and rated risk of bias.

Data Synthesis:

Five trials examined BP treatment goals, and 4 examined active agents versus placebo. Trials examining BP treatment goals included 18 466 participants with 127 882 follow-up visits. Trials were open-label, with minimal heterogeneity of effects across trials. Intensive BP treatment lowered risk for OH (odds ratio, 0.93 [95% CI, 0.86 to 0.99]). Effects did not differ by prerandomization OH (P for interaction = 0.80). In sensitivity analyses that included 4 additional placebo-controlled trials, overall and subgroup findings were unchanged.

Limitations:

Assessments of OH were done while participants were seated (not supine) and did not include the first minute after standing. Data on falls and syncope were not available.

Conclusion:

Intensive BP-lowering treatment decreases risk for OH. Orthostatic hypotension, before or in the setting of more intensive BP treatment, should not be viewed as a reason to avoid or de-escalate treatment for hypertension.

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