Effects of ACE inhibitors, calcium antagonists, and other blood-pressure-lowering drugs: results of prospectively designed overviews of randomised trials. Blood Pressure Lowering Treatment Trialists' Collaboration.

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BACKGROUND: This programme of overviews of randomised trials was established to investigate the effects of angiotensin-converting-enzyme (ACE) inhibitors, calcium antagonists, and other blood-pressure-lowering drugs on mortality and major cardiovascular morbidity in several populations of patients. We did separate overviews of trials comparing active treatment regimens with placebo, trials comparing more intensive and less intensive blood-pressure-lowering strategies, and trials comparing treatment regimens based on different drug classes. METHODS: The hypotheses to be investigated, the trials to be included, and the outcomes to be studied were all selected before the results of any participating trial were known. Individual participant data or group tabular data were provided by each trial and combined by standard statistical techniques. FINDINGS: The overview of placebo-controlled trials of ACE inhibitors (four trials, 12,124 patients mostly with coronary heart disease) revealed reductions in stroke (30% [95% CI 15-43]), coronary heart disease (20% [11-28]), and major cardiovascular events (21% [14-27]). The overview of placebo-controlled trials of calcium antagonists (two trials, 5520 patients mostly with hypertension) showed reductions in stroke (39% [15-56]) and major cardiovascular events (28% [13-41]). In the overview of trials comparing blood-pressure-lowering strategies of different intensity (three trials, 20,408 patients with hypertension), there were reduced risks of stroke (20% [2-35]), coronary heart disease (19% [2-33]), and major cardiovascular events (15% [4-24]) with more intensive therapy. In the overviews comparing different antihypertensive regimens (eight trials, 37,872 patients with hypertension), several differences in cause-specific effects were seen between calcium-antagonist-based therapy and other regimens, but each was of borderline significance. INTERPRETATION: Strong evidence of benefits of ACE inhibitors and

calcium antagonists is provided by the overviews of placebo-controlled trials. There is weaker evidence of differences between treatment regimens of differing intensities and of differences between treatment regimens based on different drug classes. Data from continuing trials of blood-pressure-lowering drugs will substantially increase the evidence available about any real differences that might exist between regimens.