MEDIBEATS
The Medical Bulletin

In Hypertension

Lowering Blood Pressure Reduced Risk for New-Onset Diabetes

In a Meta-Analysis, Lowering Blood Pressure Reduced Risk for New-Onset Diabetes *Bruce Soloway, MD*, reviewing *Nazarzadeh M et al.* Lancet 2021 Nov 13 Angiotensin-converting–enzyme inhibitors and angiotensin-receptor blockers significantly lowered diabetes risk, whereas β-blockers and diuretics raised risk. Blood pressure (BP) lowering helps prevent vascular complications of diabetes, but does it help prevent onset of diabetes? Randomized trials of drug therapies have suggested that angiotensin-converting–enzyme (ACE) inhibitors and angiotensin-receptor blockers (ARBs) lower risk for new-onset diabetes, whereas diuretics and β-blockers might raise risk. Researchers conducted a patient-level meta-analysis of 22 large, randomized trials in which a specific class of antihypertensive drug was compared with placebo or another antihypertensive drug class for cardiovascular prevention. New-onset diabetes was reported as a secondary outcome; patients with pre-existing diabetes were excluded. Overall, lowering BP by 5 mm Hg significantly lowered risk for type 2 diabetes during median follow-up of 4.5 years (hazard ratio, 0.89). Among antihypertensive drug classes, however, ACE inhibitors and ARBs significantly lowered diabetes risk (HR, 0.84), β-blockers and thiazide diuretics significantly raised risk (HRs, 1.48 and 1.20, respectively), and calcium-channel blockers had no effect (HR, 1.02). These relative risks reflected small absolute risk differences: roughly 1 excess case of diabetes per 100 thiazide users, 2 excess cases per 100 β-blocker users, and 1 fewer case per 100 users of ACE inhibitors or ARBs. COMMENT This study suggests that clinicians should consider ACE inhibitors and ARBs as first-line antihypertensive therapy in patients with excess risk for diabetes (i.e., those with prediabetes or other diabetes risk factors). However, one counterargument is that thiazides prevent adverse cardiovascular events at least as well as ACE inhibitors, despite their differing effects on glucose metabolism (NEJM JW Gen Med Apr 1 2008 and Diabetes Care 2007; 31:353). Thus, it remains unclear whether the small absolute differences in diabetes risk should dictate choice of antihypertensive agents.

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