Hypertension (page 299)

Low Diastolic Blood Pressure Risk in Recurrent Events (%)

This community-based Framingham Heart Study is the first to show that people with an initial cardiovascular disease (CVD) event and persistent isolated systolic hypertension in combination with diastolic blood pressure (DBP) <70 mm Hg versus DBP 70 to 89 mm Hg had increased risk for recurrent CVD events, largely independent of antihypertensive treatment. These findings support wide pulse pressure (≥68 mm Hg) in combination with DBP <70 mm Hg as an important CVD risk factor (see Figure). Thus, early vascular aging may be an effect modifier that increases pulse pressure and decreases DBP as central elastic arteries stiffen, resulting in premature isolated systolic hypertension. Second, recurrent CVD event risk may be related to low diastolic perfusion pressure, but only when associated with wide pulse pressure as a measure of increased elastic artery stiffness in people with isolated systolic hypertension. Third, the low diastolic perfusion pressure not only contributes to ischemic heart disease events, but also to heart failure and stroke events, suggesting a generalized cardiovascular effect beyond the coronary arteries. Furthermore, these findings occurred independent of antihypertensive treatment, as shown by the absence of interactions by treatment status. Finally, early lifestyle intervention and targeted antihypertensive treatment when indicated in young and middle-aged adults may delay or prevent the development of isolated systolic hypertension and the subsequent low DBP that predisposes to increased CVD risk associated with early vascular aging.

Dietary Nitrate in Hypertension (page 320)

Hypertension is associated with reduced circulating levels of the potent vasodilator nitric oxide. This deficiency in nitric oxide is thought to contribute, at least in part, to the endothelial dysfunction and raised blood pressure occurring in patients with essential hypertension. Disappointingly, approaches to augment vascular nitric oxide with organic nitrate medications (eg, nitroglycerin) have been hampered by tolerance and worsening of endothelial dysfunction. Recently, however, studies have indicated that the in vivo chemical reduction of the chemically distinct inorganic nitrate (NO3–), abundantly found in green leafy vegetables, reliably elevates vascular nitric oxide production, resulting in blood pressure lowering over 24 hours in both healthy volunteers and medication naïve hypertensive patients. In this issue of Hypertension, Kapil and colleagues provide the first evidence of the clinical utility of dietary nitrate in hypertensive patients over an extended treatment period. In a randomized, double-blind, placebo-controlled study in 68 hypertensive patients, once-daily dietary nitrate (beetroot juice) ingestion over 4 weeks was associated with robust, clinically relevant blood pressure reductions (>8/4 mm Hg) when measured in the clinic and by home and ambulatory blood pressure monitoring in both medication-naïve and treated hypertensive patients. The potential importance of these findings is substantial when one considers that each 2 mm Hg increase in blood pressure increases mortality caused by cardiovascular disease by 7% to 10%. These data should spur definitive outcome studies to explore dietary nitrate-based therapeutic approaches to hypertension and cardiovascular risk mitigation that may prove to be cost-effective and achievable public health approaches to hypertension.

Burden of Hypertension in Sub-Saharan Africa (page 291)

The burden of hypertension has been increasing in Sub-Saharan Africa over the past few decades, and as hypertension is a major risk factor for cerebrovascular disease, ischemic heart disease, heart failure, and chronic kidney disease, it contributes to the increasing burden of cardiovascular disease in the region. In a systematic review of data from 33 surveys across Sub-Saharan Africa involving over 110,000 participants, we found a pooled prevalence of hypertension of 30%; on average, only 27% of the people with hypertension were aware of their hypertension status before the surveys only 18% were receiving treatment on average; and only 7% had controlled blood pressure. The study highlights the high prevalence of hypertension, as well as low percentage of hypertension awareness, treatment, and control in Sub-Saharan Africa. There is a need for policy-makers to incorporate relevant public health and primary care strategies of prevention and control that account for the extent of unrecognized and suboptimally controlled hypertension in the region.