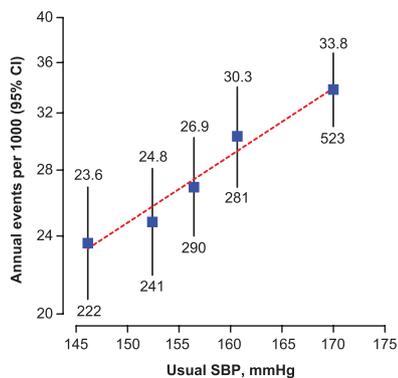


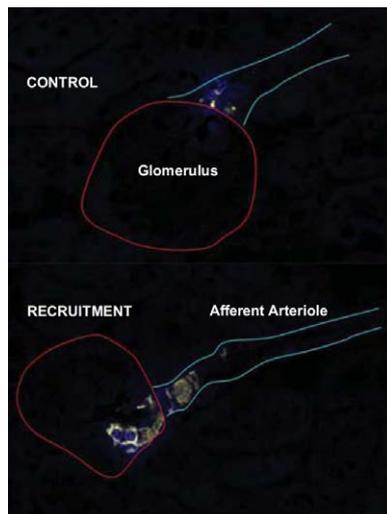
Blood Pressure and Vascular Disease in Older Men (page 1053)



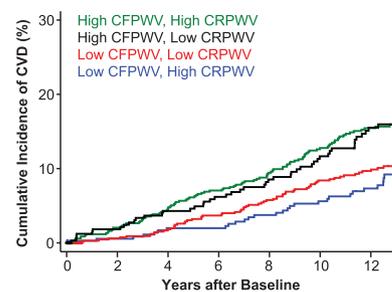
Few prospective studies have specifically investigated the effect of blood pressure on vascular risk at older age, and particularly in the elderly (such as those aged ≥ 85 years). In this issue of *Hypertension*, we report findings from an Australian prospective cohort study of 7564 men aged 65 to 94 years. During a mean follow-up of 11 years, there were 1557 major vascular events. Continuous log-linear associations were found between usual systolic blood pressure and risk of major vascular events throughout the systolic blood pressure range examined (145–170 mmHg; Figure). Overall, 10 mmHg higher usual systolic blood pressure was associated with a $\approx 20\%$ higher risk of major vascular events (mean age at event, 80 years). There was evidence of positive associations with both ischemic heart disease and stroke and effect modification by age, with shallower associations at older ages. Even at 85 to 94 years, however, there was evidence of a positive association: 10 mmHg higher usual systolic blood pressure was associated with a 14% higher risk of major vascular events. Furthermore, there was no evidence of an association between blood pressure and risk of nonvascular death. These findings do not support an upper age limit for blood pressure–lowering interventions (such as medication) to address vascular risk, but additional clinical trials are warranted to determine the optimal timing and intensity of such interventions in the elderly.

Reninoma Transcriptome (page 1145)

Treatment of hypertension with either a low-salt diet or antihypertensive medication triggers an increase in renin, often requiring more aggressive therapy over time. This reactive renin increase occurs by a fascinating but poorly understood biological process: recruitment of new renin-secreting juxtaglomerular cells from adjacent smooth muscle in the afferent arteriole (Figure). The explanation for this profound cellular transformation has remained elusive because juxtaglomerular cells rapidly dedifferentiate and lose their renin-secreting ability when isolated from the kidney. Although some groups have studied freshly isolated juxtaglomerular cells to minimize the impact of dedifferentiation, or targeted the inactivation of genes suspected to affect juxtaglomerular cell biology in mice, such approaches have led to what is akin to snapshots of a complicated process that is hard to translate to humans. In a novel approach to overcome some of these limitations, Martini et al performed deep sequencing of RNA isolated from biopsies of rare renin-producing tumors (reninomas). By searching for autocrine or paracrine factors that might explain the reversible differentiation of these cells, they found that platelet-derived growth factor could extinguish renin gene expression in a cell line derived from a targeted tumor in mice. Although this is surely only the first gleaning of functional information from this data set, it may ultimately lead to therapies that control renin cell recruitment to make antihypertensive therapy more effective.



Aortic–Brachial Stiffness Gradient and Cardiovascular Disease Risk (page 1022)



Stiffness of the aorta tends to increase with age, whereas the relationship between peripheral muscular arteries and advancing age is not as pronounced. Age-related changes in vasculature thereby result in a reduction or even a reversal of the physiological arterial stiffness gradient in most individuals. A recent study reported that an increased aortic–brachial arterial stiffness gradient (defined as the ratio of carotid–femoral pulse wave velocity [CFPWV] and carotid–radial pulse wave velocity) was a better predictor of all-cause mortality than CFPWV alone in dialysis patients. Using data collected from 2114 Framingham Heart Study participants, Niiranen et al evaluated whether the aortic–brachial arterial stiffness gradient incrementally predicts cardiovascular disease beyond conventional CFPWV in the community. In their investigation, the authors demonstrated that the aortic–brachial arterial stiffness gradient is significantly related to cardiovascular outcomes. However, the stiffness gradient provides no incremental predictive value for cardiovascular events over common cardiovascular risk factors and CFPWV in the community or in subgroups. The authors could not, therefore, replicate the previous findings that underscored the prognostic importance of the aortic–brachial arterial stiffness gradient in dialysis patients. The results of Niiranen et al suggest that the prognostic significance of the arterial stiffness gradient ratio may vary based on baseline cardiovascular risk, and CFPWV should remain the criterion standard for assessing vascular stiffness in the community.

Clinical Implications

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