Top Ten Things to Know
Impact of Hypertension on Cognitive Function

1. Alzheimer disease (AD) and cerebrovascular diseases are the two leading causes of cognitive impairment accounting for about 80% of cases and often include a mixture of both pathologies. The term vascular cognitive impairment (VCI) indicates the entire range of cognitive deficits caused by vascular factors, whereas “vascular dementia” refers to the more severe cases of VCI, in which the cognitive decline impacts negatively on day-to-day functioning.

2. Dementia is one of the most common neurological disorders, affecting an estimated 30-40 million people worldwide. The number of persons with dementia is anticipated to triple by 2050 due to the aging of the population, demographic shifts and lack of disease modifying treatments, with an associated cost exceeding $1.1 trillion.

3. This paper examines the impact of hypertension on cognition to assess the state of the science, understand gaps and suggest directions for the future.

4. Current science is discussed in the following areas: Effects of hypertension on cerebrovascular structure and function, cognitive domains targeted by hypertension, observational studies on hypertension and cognition, interaction with other risk factors, hypertension and Alzheimer’s disease, hypertension and cognition: Clinical trials of blood pressure lowering and hypertension treatment over the life course.

5. Hypertension disrupts the structure and function of cerebral blood vessels, which leads to ischemic damage of white matter regions of the brain critical for normal cognitive function and may accentuates Alzheimer pathology.

6. There is strong evidence of the deleterious effect of midlife hypertension on late-life cognitive function. However, the cognitive impact of the late-life hypertension is less clear.

7. Some studies have shown an association of worse cognition in the elderly (late-life) with higher BPs while other studies have shown better cognition in the elderly with higher BPs, highlighting the complexities and gaps in understanding of recommending uniform levels of BP across the life course.

8. Along with aging, menopausal status, APOE e4 genotype, insulin resistance, systemic inflammation, and other comorbidities may potentiate the cognitive decline in individuals with hypertension.

9. Observational studies have demonstrated a cumulative effect of hypertension on cerebrovascular damage; evidence from clinical trials that antihypertensive treatment improves cognition is not conclusive. While evidence points to the positive effects of hypertension control on cognition, more clinical trial evidence is needed to make more definitive recommendations.

10. Even with no conclusive evidence from clinical trials, treatment of high blood pressure in midlife and judicious use of antihypertensives in late life, taking into account cerebrovascular status and comorbidities, seems justified to safeguard vascular health and as a downstream effect, on brain health.

Iadecola C, Yaffe K, Biller J, Bratzke LC, Faraci FM, Gorelick PB, et al; on behalf of the American Heart Association Council on Hypertension; Council on Clinical Cardiology; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing; Council on Quality of Care and Outcomes Research; and Stroke Council. Impact of hypertension on cognitive function: a scientific statement from the American Heart Association [published online ahead of print October 10, 2016]. Hypertension. doi: 10.1161/HYP.0000000000000053.