

Stroke Guidelines: Current Recommendations in Principle and Practice

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Vascular contributions to cognitive impairment and dementia in later life are common as people live longer and the burden of cognitive impairment in society becomes increasingly important [Gorelick PB et al. *Stroke* 2011]. Every 69 seconds, a person in the United States develops Alzheimer disease (AD). This rate is expected to double by 2050, with total direct costs of AD and dementia expected to rise to \$1.1 trillion [Stefanacci RG. *Am J Manag Care* 2011].

Philip B. Gorelick, MD, MPH, FACP, Medical Director, Hauenstein Neuroscience Center, Saint Mary's Health Care, Grand Rapids, Michigan, USA, discussed guidelines from the American Heart Association/American Stroke Association (AHA/ASA) on vascular contributions to cognitive impairment and dementia [Gorelick PB et al. *Stroke* 2011]. The objectives of the presentation were to provide a rationale for the AHA/ASA guidance statement, along with key recommendations and next steps.

The imperative for such a statement has been driven by high rates of stroke as the population ages; the association between risk factors and both vascular cognitive impairment (VCI) and AD; and the need for an evidence-based review to guide health care professionals in the treatment, management, and possible prevention of these vascular factors and cognitive impairment.

Older patients who present to primary care offices often have some form of dementia, but various factors cause the diagnosis to be missed or delayed [Cooksey R, Knebel J. *J Clin Psychiatry* 2012]. Some of the key recommendations from the guidelines follow:

Lifestyle Factors

The following lifestyle intervention in persons who are at risk for VCI is reasonable: 1) smoking cessation (Class IIa; Level of Evidence [LOE]: A); 2) moderation of alcohol intake (Class IIb; LOE: B); 3) weight control (Class IIb; LOE: B); and 4) physical activity (Class IIb; LOE: B). The use of antioxidants and B vitamins in persons who are at risk for VCI are not useful, based on current evidence (Class III; LOE: A), and are not recommended.

Physiological Risk Factors

Treatment of hypertension (Class I; LOE: A) is recommended for those who are at risk for VCI. Treatment of hyperglycemia (Class IIb; LOE: C) and hypercholesterolemia (Class IIb; LOE: B) may be reasonable. It is uncertain if treatment of inflammation will reduce the risk of VCI in persons who are at risk for VCI (Class IIb; LOE: C).

Blood Pressure Lowering and Cognition

In stroke patients, lowering blood pressure is effective for reducing the risk of poststroke dementia (Class I; LOE: B). Reasonable evidence indicates that in middle-aged and young elderly patients, lowering blood pressure can be useful for prevention of late-life dementia (Class IIa; LOE: B). The usefulness of lowering blood pressure in individuals aged older than 80 years is not well established (Class IIb; LOE: B).

Other recommendations pertain to a Mediterranean-type dietary pattern, vitamin supplementation, physical activity, and the use of antiaggregant therapy for VCI (all Class IIb; LOE: B) but are not widely agreed upon. The National Institutes of Health State-of-the-Science Conference Statement: Preventing AD and Cognitive Decline concluded that there is no association of even moderate evidence that a modifiable risk factor reduces the risk of developing AD; that most studies show no association, inconclusive evidence, or evidence of generally low quality; and that evidence is inadequate to conclude that any therapeutic intervention delays the onset of AD. The statement also cited inconsistent and varied methodological assessments that prevent clear and concise answers to questions and the need to bridge these gaps [Davignus ML et al. *Ann Intern Med* 2010].

In summary, Dr. Gorelick said that VCI may occur when there is clinical or subclinical vascular brain injury that could lead to VCI via strategically placed small and large brain strokes and white matter lesions. Cardiovascular risks, such as hypertension and other factors, are linked not only to VCI risk but also to AD risk. Lowering blood pressure is recommended in those who are at risk for VCI prevention.