American Medical Women's Association

Cardiovascular Disease and Dementia

Clinical Discussion Guide

Question: Is There an Interrelationship Between Cardiovascular Disease and Dementia?

Discussion: Cardiovascular disease (CVD) and dementia are closely interconnected through shared vascular and metabolic pathways.

Hypertension and hyperlipidemia are two key risk factors that drive this relationship, both of which can accelerate cognitive decline. Importantly, vascular damage from these conditions may begin years before symptoms appear, underscoring the need for early detection and management.

When an individual also presents with diabetes and obesity, the risk for dementia becomes even greater, as these conditions promote cerebral small vessel disease, impair blood flow, increase inflammation, and contribute to neurodegeneration—all of which elevate the risk for dementia. Addressing these risk factors is critical for reducing both CVD burden and cognitive decline across the lifespan.

Chronic vascular injury from elevated blood pressure or diabetes may impair cerebral blood flow, promote inflammation, and disrupt the blood-brain barrier, accelerating cognitive decline. Clinical trial findings confirm that midlife hypertension and diabetes are strongly associated with later-life dementia, particularly vascular dementia and Alzheimer's disease with vascular components. Recent trials like the SPRINT MIND trial indicated that intensive BP control may lower the risk of mild cognitive impairment, supporting the importance of managing vascular risk factors to help preserve brain health.

There are no single unified guidelines to manage both CVD and dementia, but recommendations promote an individualized approach that addresses overlapping challenges. Key strategies include optimizing blood pressure, lipid, and diabetes control using evidence-based targets, while avoiding overtreatment that can increase the risk of falls, hypotension, or hypoglycemia. Antiplatelet or anticoagulant therapy is essential when indicated, particularly for stroke prevention in vascular dementia or atrial fibrillation. Lifestyle measures such as physical activity, a Mediterranean-MIND dietary approach, smoking cessation, and social engagement should be encouraged and tailored to the patient's cognitive abilities.

Regular review of medications is crucial to minimize polypharmacy and avoid drugs with anticholinergic effects. Management should be multidisciplinary, involving neurologists, cardiologists, primary care, and allied health professionals, with attention to quality of

life, functional preservation, and advance care planning, as well as attention to caregiver needs.

Question: Is there a difference in dementia risk depending on the type of cardiovascular disease?

Discussion: Yes. Stroke nearly doubles the risk of dementia, with each subsequent stroke increasing individual risk further. Heart failure is associated with reduced cardiac output and cerebral hypoperfusion, leading to structural and functional brain changes. Coronary artery disease is linked to subclinical cerebrovascular damage, especially in older adults.

Question: How Might a CVD Risk Score Inform Risk for Cognitive Impairment?

Discussion: The study, *Cardiovascular Disease Risk Scores and Risk of Cognitive Decline and Dementia in Older Men and Women,* examined the relationship between CVD risk scores and the long-term risk of cognitive decline and dementia. The findings suggest that higher cardiovascular risk scores, which account for factors like hypertension, cholesterol levels, smoking, and diabetes, were strongly associated with an increased risk of both cognitive decline and dementia. The researchers emphasized that incorporating cardiovascular risk assessments into routine clinical practice could help identify older adults at higher risk for dementia, enabling earlier interventions to manage CVD and potentially reduce the likelihood of developing dementia.

Question: Are there modifiable CVD risk factors that may slow the onset or progression of dementia?

Discussion: Yes. Findings from a recent *Lancet* study (Mukadam, et. al.) suggest that nearly 40% of all dementia cases in the United States may be linked to 12 modifiable risk factors, with hypertension, obesity, and physical inactivity being the most consequential. Notably, Black and Hispanic adults have the highest proportion of combined risk factors, largely due to higher rates of CVD, diabetes, and adverse social determinants of health such as lower educational attainment, poverty, and discrimination.

Other modifiable risk factors include lower education, hearing loss, traumatic brain injury, hypertension, excessive alcohol use, obesity, smoking, depression, social isolation, physical inactivity, diabetes, and air pollution.

The SPRINT MIND trial (*JAMA* 2019) provided some of the strongest clinical evidence linking cardiovascular management to brain health. From this randomized study, intensive blood pressure control targeting a systolic BP of less than 120 mmHg significantly reduced the risk of mild cognitive impairment (MCI) by approximately 19% compared to controls. While the data did not reach statistical significance, the association between blood pressure management and a delay in cognitive decline is supported by clinical guidelines such as the American Heart Association/American

Stroke Association brain health guidelines (2021). These guidelines recommend maintaining blood pressure (<120/80 mmHg), glycemic control, lipid management, regular aerobic physical activity, weight control, and smoking cessation.

In summary, managing cardiovascular and lifestyle risk factors should start in midlife to reduce dementia onset and progression. Clinicians should consider and address any social determinants of health, such as education, poverty, and access to care, which contribute to health disparities and increase dementia risk.

Question: What are recommendations for women at risk of both CVD and dementia?

Discussion: Women have a unique risk profile and physiological factors that may influence the development of cardiovascular disease and dementia differently from men. These include hormonal changes, reproductive history, and an increased risk for certain conditions, such as stroke, which is known to contribute to dementia.

Key Recommendations for Women:

1. Control Blood Pressure. Blood pressure control may reduce the risk of cognitive Impairment. High blood pressure damages small blood vessels in the brain, contributing to stroke, white matter changes, and brain atrophy, all of which increase the risk of vascular and AD-type dementia. Intensive blood pressure control reduces mild cognitive impairment, making it a key strategy for protecting brain health.

   Women with dementia may be more vulnerable to medication side effects (like orthostatic hypotension from BP meds) due to lower body mass and differences in drug metabolism, so doses may need to be adjusted carefully.

   Pregnancy-related Hypertension: Women who may experience preeclampsia or gestational hypertension during pregnancy are at increased risk for developing hypertension later in life.

   Postmenopausal Hypertension: After menopause, women may experience a rise in blood pressure due to the loss of estrogen, which decreases the protective effect on blood vessels.

   Recommendation: Women who present with elevated blood pressure should be encouraged to have their blood pressure checked regularly, so the presentation of hypertension can be closely managed to reduce the risk for cognitive decline.

2. Stroke and Vascular Disease

   Women have a higher lifetime risk of stroke than men, and stroke is a significant risk factor for dementia. Women have smaller blood vessels, greater blood pressure variability, and may experience more atrial fibrillation-related embolic

strokes, all of which increase stroke risk. Additionally, they are often diagnosed and treated later than men, which can worsen outcomes.

Recommendation: Screen and treat for hypertension, diabetes, and atrial fibrillation early and aggressively, especially after menopause. Ensure appropriate use of anticoagulation in women with atrial fibrillation to prevent embolic stroke.

3. Reproductive History and Hormonal Changes

   Early Menopause: Women who experience early menopause or oophorectomy have a higher risk of developing both cardiovascular disease and dementia, due to an earlier decline in estrogen levels. Hormone replacement therapy may mitigate some risk, but its role in dementia prevention remains unsettled.

   Oral Contraceptive Use: Women who use oral contraceptives over extended years may have a slight increase in risk for hypertension and stroke as well as cognitive impairment.

   Recommendation: Know your patient's reproductive history, and discuss hormone-related factors in managing cardiovascular risk and dementia prevention.

4. Metabolic Syndrome

   Diabetes and Metabolic Disease. Women with diabetes are at greater risk for developing dementia, specifically AD, compared to men. Metabolic syndrome, which encompasses hypertension, high cholesterol, and abdominal obesity, also confers a higher risk of dementia in women.

   Recommendation: Women with diabetes, particularly postmenopausal women, should receive tailored strategies for managing blood glucose levels, weight, and cardiovascular risk factors. Weight management and lifestyle changes are crucial in preventing metabolic syndrome.

5. Social Connectedness

   Isolation and Depression: Women are more likely to experience depression, a well-known risk factor for dementia. Additionally, some studies have suggested that women may have higher rates of social isolation, which can also negatively impact cognitive function.

   Recommendation: Considering mental wellbeing is vital. Clinicians should screen for depression regularly and encourage social engagement, physical activity, and cognitive stimulation to reduce loneliness and its increased risk for dementia.

6. Physical Activity

   Regular Exercise. Women are often less physically active than men, which is a modifiable risk factor for both CVD and dementia. Regular physical activity has been shown to reduce both cognitive decline and cardiovascular disease. Importantly, about 20-30% of older adults (≥ 65 years old) experience one or more falls each year, and falls are associated with a significant risk of fractures and reduced functioning.

   Recommendation: Encourage women to engage in a minimum of 150 minutes of moderate-intensity aerobic activity weekly, combined with strength training exercises at least two days a week to promote brain health.

Sources:

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This program is sponsored by Eisai. Content developed independently by AMWA.