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Heart Failure, Atrial Fibrillation, CHD and Cognitive Impairment

According to a new scientific statement from the American Heart Association, three common cardiovascular diseases in adults—heart failure, atrial fibrillation, and coronary heart disease—are closely linked to cognitive decline and an increased risk of dementia. The statement reviews current research on the relationship between cardiovascular and brain health, emphasising the critical connection between the two and its impact on overall well-being.

Stroke and cognitive decline are significant contributors to poor brain health and have a profound effect on both individuals and society. Managing heart health from an early age is vital for preventing cardiovascular diseases, protecting brain function, and reducing cognitive decline risk later in life. Evidence suggests that early management of vascular risk factors and adopting a healthy lifestyle can preserve brain function and reduce the risk of Alzheimer's and related dementias.

Studies indicate that nearly 50% of people with heart failure experience cognitive issues, affecting memory, language, and decision-making. More severe cases of heart failure tend to correlate with higher rates of cognitive dysfunction.

The reduced blood flow in heart failure may lead to mini-strokes or silent brain injuries, while chronic inflammation and hormonal imbalances also contribute to brain damage. Sleep disorders and obesity, common among heart failure patients, further increase the risk of cognitive decline. Additionally, people with heart failure often show brain changes, such as loss of gray matter and white matter damage, that impair brain function.

Patients with severe heart failure are encouraged to undergo cognitive screening before surgical interventions, given the increased risk of stroke —a major cause of cognitive impairment.

Atrial fibrillation (AFib) is also strongly linked to an increased risk of stroke, but its connection to cognitive decline is less well understood. Research indicates that AFib raises the risk of cognitive impairment by 39%, even in the absence of stroke. Shared risk factors between AFib and dementia include type 2 diabetes, heart failure, high blood pressure, smoking, and advanced age. Reduced blood flow from AFib can deprive key brain areas of oxygen, and systemic inflammation linked to both AFib and Alzheimer's disease may increase the risk of brain damage.

Treatments for AFib, such as anti-clotting medications or catheter ablation procedures, may help reduce the risk of cognitive decline. Studies are ongoing to determine whether restoring normal heart rhythm can better preserve cognitive function.

Coronary heart disease significantly raises the risk of dementia and cognitive decline. A large review found that individuals with heart disease had a 27% higher chance of developing dementia compared to those without heart disease. After a heart attack, up to 50% of people experience cognitive impairment, including memory loss and reduced executive function.

Heart disease can damage the brain through multiple pathways, including inflammation, reduced blood flow, and small vessel disease. These mechanisms are also seen in patients with Alzheimer's disease, suggesting a strong connection between blood vessel damage and brain degeneration. Additionally, genetic factors linked to heart disease may contribute to brain shrinkage and cognitive decline.

Addressing vascular risk factors through lifestyle changes like diet and exercise may help maintain brain health. While some treatments, like intensive blood pressure management, have shown promise in preventing mild cognitive impairment, more research is needed to determine the

best strategies for protecting cognitive function in heart disease patients.

Promoting heart health early in life is essential to preventing cognitive decline. There is a need for more research to explore how cardiovascular care can improve brain health and to understand how gender, race, and ethnicity influence the heart-brain connection. Encouraging healthy lifestyles and monitoring heart health through tools like the American Heart Association's Life's Essential 8 are key steps in reducing the risk of cognitive impairment.

Source: American Heart Association

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