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# ALZHEIMER'S AND BRAIN AWARENESS MONTH

## **THE LINK BETWEEN DEMENTIA AND HEART DISEASE** Dementia is one group of brain disorders linked to a higher risk of Cardiovascular disease



## The brain is one of our most vital organs because it regulates crucial functions such as our ability to breathe, to eat, to move, and, to some extent, live.

Like all other organs, the brain relies heavily on the heart's well-being to function properly. Recent studies have indicated that certain brain disorders may also contribute to heart disease.

Dementia is linked to a wide range of brain disorders that are associated with an increased risk of cardiovascular disease. In total, there are currently about 50 million people worldwide have dementia, with nearly 10 million new cases each year. Dementia is a broad term that refers to disorders characterized by decreased memory and other essential brain functions. These disorders include Alzheimer's Disease, Vascular Dementia, and Parkinson's Disease. Unfortunately, dementia not only affects brain function but has also been linked to a higher risk of cardiovascular disease.

#### Don't Forget About the Heart When Discussing Brain Health

As being vital organs, the brain and heart are integral to the function of the body's other organs, including one another. Thus, when we talk about these brain disorders such as dementia, it only seems fitting to consider how they can affect the heart and vice versa.

The most apparent link between heart disease and dementia is their shared risk factors. The Cardiovascular conditions, like atherosclerosis (arterial blockage), inflammation, and hypertension (high blood presssure), can lead to decreased blood flow to the brain. <sup>12</sup> This can result in brain damage that can lead to Vascular Dementia. The alternative risk factors for this form of dementia include obesity and Type 2 diabetes, which are again risk factors for heart disease. The above mentioned cardiovascular-associated risk factors for dementia will draw attention to the brain's sensitivity to heart disease and to cardiovascular disorders.

The connection between dementia -related brain disorders and cardiovascular health is well-established. The pathway from brain conditions to cardiovascular disease can vary depending on the specific type of dementia an individual has. Therefore, the presence of dementia can negatively impact heart health in several ways.

#### **Alzheimer's Disease**

<u>Alzheimer's disease</u>, one of the most common forms of dementia, it affects about 1 in every 9 people aged 65 or older. This progressive brain disorder leads to a drop in cognitive functions that primarily are caused by abnormal buildup of amyloid protein plaques.

A recent study from the University of Genoa found that many patients of Alzheimer's also have left ventricular hypertrophy, or enlargement<sup>[2]</sup> of the heart's left ventricle. This ventricle is responsible for pumping oxygenated blood throughout the body. When walls become too thick and loses elasticity, resulting in decreased blood output and a higher risk of heart failure. This study highlighted that amyloid plaques that is related to Alzheimer's also accumulate in the heart, contributing to this hypertrophy.

Scientists have found that amyloid plaques linked to Alzheimer's disease also increase the risk of <u>heart attacks</u> <u>and strokes</u>, potentially causing left ventricular hypertrophy in affected patients.

#### What This Means for Patients and Families



Studies will be integral in helping those suffering from Alzheimer's disease. Because amyloid beta deposits can develop in the heart, the families and healthcare providers of people with Alzheimer's must be on the lookout for signs of heart disease.

There is still no cure for Alzheimer's. However, there have been many advancements in treatment for the disease that have allowed people with Alzheimer's to live longer than was previously expected when first diagnosed. This is excellent news, but it doesn't mean that there is a higher chance they may develop heart problems along the way due to their disease.

Thanks to this new research, however, patients suffering from Alzheimer's can now better avoid potential cardiovascular issues in the future by being aware of the high risk and monitoring their health closely.

#### **Alzheimer's Patients and Heart Health**

Those with loved ones suffering from Alzheimer's should keep the <u>signs of a heart attack</u> in mind. These include chest pain, pain that spreads to the arm, dizziness or nausea, pain in the throat or jaw, and an irregular heartbeat. Not all heart conditions have easily noticeable symptoms like a heart attack; however, it is imperative to see a <u>cardiologist</u> regularly to monitor blood pressure, <u>atherosclerosis</u>, and other signs of heart disease. Like Alzheimer's, heart conditions are known to worsen over time, and early intervention is key to prevention.

#### Vascular Dementia

Vascular Dementia is the second most common form of dementia, following Alzheimer's Disease. Unlike Alzheimer's Disease, Vascular Dementia arises from brain damage caused by problems with the brain's blood supply. It has a number of causes, but it is most commonly caused by stroke-induced damage. A stroke occurs when the blood supply to part of the brain is cut off. In the case of an ischemic stroke, the lack of a blood supply can be caused by a blood clot, while a hemorrhagic stroke is caused by a leaky blood vessel.

Nonetheless, stroke, and thus Vascular Dementia, is a problem strongly associated with the cardiovascular system and cardiovascular disease. By the nature of their relationship, the risk factors for cardiovascular disease, such as obesity, high cholesterol, and hypertension, can also increase an individual's risk for Vascular Dementia if preventive action and lifestyle changes are not made.

#### **Parkinson's Disease**

Dementia is also a common feature among people that have Parkinson's Disease. Parkinson's Disease is a very progressive nervous system disorder that affects movement. This disease will gradually progresses from very small symptoms, similar to tremors and stiffness, to more noticeable ones, like speech slurring and the loss of autonomic functions (e.g., blinking, swinging arms while walking, etc.). These changes are largely attributed



to the fact that Parkinson's Disease arises from the impairment of the autonomic nervous system.

A population-based cohort study conducted by Korea University and Ansan Hospital in South Korea found that Parkinson's Disease was associated with a higher risk for cardiovascular disease. When comparing the incidence of these cardiovascular conditions among individuals with and without Parkinson's Disease, they found that Parkinson's patients were 1.65 times more likely to experience congestive heart failure, 1.43 times more at risk for heart attack, and 1.42 times more likely to have an ischemic stroke.<sup>[4]</sup>

Although the mechanisms underlying the relationship between Parkinson's Disease and heart disease are not fully understood, studies funded by the American Parkinson's Disease Association are shedding light on the effect of autonomic dysfunction on cardiac disease in those with Parkinson's Disease. In brief, neurons in the hypothalamus and brain stem can detect changes in the physiological and chemical state of the body. These neurons then relay this message to the autonomic nervous system, signaling the body to regulate its response. A healthy person's autonomic nervous system can adequately control blood pressure through vasodilation, constriction, or varying heart rate. However, in an person who has Parkinson's Disease, the brain's ability to pass on autonomic messages to the heart may become impaired. Some notable cardiac effects among Parkinson's patients include varying intervals between heartbeats or a distinctive electrocardiogram. While these cardiac abnormalities can increase a Parkinson's risk for heart disease, their progression to a serious heart condition and/or cardiac event can be prevented with the proper lifestyle changes.

#### What Needs to Change to Prevent Heart Disease?

Although dementia has been associated with heart disease, a diagnosis does not mean that the development of serious heart complications is definite. Many that develop can be prevented by adopting heart-healthy lifestyle changes encompassing a nutritious diet, exercise, and getting

## Why Choose Nasiff?



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<u>Heart disease</u> is a serious health concern that causes more fatalities than any other disease. An Electrocardiogram (ECG) is a non-invasive diagnostic test that measures the electrical activity of the heart and can help detect heart abnormalities, such as heart damage or abnormal heart rhythms. ECG is one of the most reimbursed tests because it does a great job at finding early signs of heart disease. Dr. Nasiff has developed diagnostic tools that are <u>highly regarded</u> in the medical community.

All of the Nasiff systems have intelligent ECG interpretations, which means the CardioCard software delivers automatic interpretations of EKG data. This reduces the time physicians need to spend reviewing tests and allows for faster diagnosis. The systems are designed to integrate seamlessly with the major EMR, EHS, and EHR platforms, allowing efficient sharing and storage of patient data.





activity and adequate rest.

When caring for patients and loved ones with dementia, it is important to remember that their hearts can and should be cared for, too.

Dementia and heart disease are both progressive illnesses, meaning that they can worsen with age. With that said, those do not yet have dementia can prevent the progression of these diseases by making lifestyle changes. Whether it's your heart health, brain or you reduce your risk by staying keenly aware and being proactive about your health.

#### Vascular Dementia

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