Heart failure patients have similar odds of dementia-type brain lesions as stroke patients

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A type of brain damage linked with dementia and cognitive impairment is as common in heart failure patients as it is in patients with a history of stroke, according to findings from the LIFE-Adult-Study presented today at ESC Congress 2019 together with the World Congress of Cardiology.

The probability of this damage, called white matter lesions (WML), was also linked to the duration of heart failure. Patients with a long-standing diagnosis had more WML compared to those more recently diagnosed.

"Up to 50% of older patients with heart failure have cognitive impairment and heart failure is associated with an increased risk for dementia," said study author Dr. Tina Stegmann of Leipzig University Hospital, Germany. "However, it is still unclear what the pathological pathways are. Some investigators have identified changes in brain structure in patients with heart failure and cognitive dysfunction, but the findings are inconsistent."

LIFE-Adult is a population-based cohort study conducted in Leipzig. Between 2011 and 2014, 10,000 residents aged 18 to 80 were randomly selected for inclusion in the study. Participants underwent assessments such as a physical examination and medical history during which information on health conditions—for example heart failure and stroke—was collected.

This subgroup analysis included the 2,490 participants who additionally

underwent magnetic resonance imaging (MRI) of the brain. The purpose of the analysis was to determine the frequency and associated risk factors for WML in a population cohort and potentially discover a connection with heart failure.

Most participants in the subgroup analysis had no or mild WML (87%), and 13% had moderate or severe WML. Mild WML are common and increase with age. In contrast, moderate or severe WML are associated with cognitive impairment and dementia.

There were significant independent associations between WML and age, high blood pressure, stroke and heart failure. Patients with heart failure had a 2.5 greater probability of WML than those without heart failure. Similarly, stroke patients had a two times higher likelihood of WML than those with no stroke history.

The odds of WML increased as the period with heart failure lengthened: from 1.3 for a diagnosis less than three years, to 1.7 for a diagnosis of four to six years, and 2.9 for a diagnosis longer than six years.

Dr. Stegmann said the connections between heart failure, stroke, and WML could be due to shared risk factors such as age and high blood pressure. In addition, there may be a causal link between heart failure and stroke. It is well known, for instance, that the risk of stroke is higher in patients with heart failure than without.

"The role of dementia and its prevention is of growing interest in heart failure research as the overall heart failure population is ageing and suffering from numerous comorbidities," she added. "Studies are needed to see if WML could be a therapeutic target for treating cognitive decline in patients with heart failure."

Dr. Stegmann concluded: "After cancer, dementia is the most feared

disease by patients. But there is currently no clear indication to screen for WML in heart failure patients using brain MRI."

More information: The abstract "Heart failure patients show increase of white matter lesions in MRI-imaging: LIFE-Adult-Study" will be presented during Poster Session 4: Imaging in heart failure on Monday 2 September at 08:30 to 12:30 CEST in the Poster Area.

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