

Association discovered between atrial fibrillation and reduced frontal lobe brain volumes

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According to a recent Framingham Heart Study, people who experience the heart arrhythmia atrial fibrillation (AF), may also suffer from a smaller brain, specifically reduced frontal lobe volume.

AF is a serious cardiovascular condition that is associated with a significant degree of morbidity and mortality. It is associated with an increased risk of stroke, heart failure and death. AF is known to be associated with cognitive decline and increased risk of dementia, but little is known about the impact of AF on [brain structure](#) in people with AF who are cognitively intact.

The study, which appears in the journal *Heart Rhythm*, looks at the relationship between AF and brain volume measured by [magnetic resonance imaging](#) (MRI). The researchers examined total cerebral volume, [frontal lobe](#) volume, temporal lobe volume, hippocampal volume and white matter hyper-intensity volume in patients without prior stroke or dementia. Their results showed that AF was associated with smaller frontal lobe volumes, even after adjusting for age, gender, vascular risk factors and APOE4 (a gene independently linked to smaller brain volumes).

"We believe that good heart health also contributes to good brain health and given that the incidence of AF is expected to more than double in the next three decades, we are interested in understanding the association

between AF and brain anatomy," explained corresponding author Rhoda Au, PhD, professor of anatomy and neurobiology, neurology and epidemiology at Boston University Schools of Medicine (BUSM) and Public Health (BUSPH) and director of neuropsychology for the Framingham Heart Study.

According to Au, further research will focus on determining whether these [brain](#) structure findings translate into impact on cognitive skills, such as problem solving, memory and language.

Provided by Boston University Medical Center

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