

Cognitive assessment of patients with atrial fibrillation

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Introduction: Atrial fibrillation (AF) is the most common cardiac arrhythmia and is one of the most important and emerging cardiovascular disease due to its impact on both mortality and morbidity [1]. The prevalence of AF ranges from 0.1% in patients up to 55 years to more than 9% for the ones over 85 years old [2]. AF may be an important factor of cognitive and functional decline, even in the absence of stroke [3, 4]. Authors argue that patients with AF, even without apparent functional or cognitive impairment, should be submitted to assessment for cognitive decline annually due to their higher prevalence and prognostic importance [4]. However, most studies of cognitive decline in patients with AF published so far have primarily focused on general cognitive screening batteries. The aim of this study was to analyze the cognitive performance of patients with AF without stroke using a broad neuropsychological battery.

Materials and Methods: Twenty patients with AF were selected from the Cardiology Ambulatory of the Clinical Hospital of UNICAMP and age, sex and level of schooling-matched twenty controls were selected from different ambulatories of the Clinical Hospital of UNICAMP. Patients and controls were also paired according to cardiovascular risk factors other than AF. All individuals signed an Informed Consent prior to the study enrollment. The data were collected in the period from March to October of 2017. After accepting to join the study, the subjects were submitted to a neurological evaluation conducted by a neurologist and magnetic resonance imaging to exclude silent strokes. Individuals with clinical or neuroimaging suspicious of stroke were excluded. Individuals were then submitted to the neuropsychological assessment. The neuropsychological assessment included the evaluation of awareness, executive functions, memory processes, praxis, language and visuoconstructive abilities. The battery was performed in a single session of 60 minutes. Individuals with severe clinical conditions, mental disorders or severe cognitive deficiency were excluded. The performance of the tests between the two groups was compared through Mann-Whitney test [5].

Results: We observed significant differences in patients with AF compared to the control group mainly in executive functions, such as cognitive flexibility, planning, operational memory, visuospatial abilities and inhibitory control.

Discussion: AF has been associated with changes in hemostasis, endothelial injury, platelet dysfunction, low cardiac output, increased rates of silent lacunar infarction and microembolization [6]. All these mechanisms may secondarily affect cognition. Our data suggest that, in the absence of clinical and neuroimaging evidence of stroke, these or other mechanisms may lead to brain damage, manifested as cognitive dysfunction, particularly in executive functions. Therefore, AF may lead to impairments in functionality and compromise the quality of life of these patients.

Conclusion: Patients with AF without stroke can present cognitive abnormalities, particularly in executive functions.

References: [1] doi.org/10.1161/CIR.0b013e3182456d46; [2] Wajngarten, M. et al., PROCLIM (1): 9-46, 2008; [3] doi: 10.1503/cmaj.111173. Epub 2012 Feb 27; [4] doi: 10.1016/j.ahj.2014.12.015. Epub 2015 Jan 13; [5] Mann HB, Whitney DR. On a test of whether one of two random variables is stochastically larger than the other. Ann MathStat. 1947;18:50–60; [6] doi: 10.1093/eurheartj/ehn341. Epub 2008 Jul 29