

Mini Mental State Examination did not reveal cognitive impairment in our patients with atrial fibrillation

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Background: Atrial fibrillation (AF), the most common arrhythmia in the general population, is associated with accelerated cognitive decline in comparison with healthy individuals¹. Some studies reported that the duration of exposure to AF increases the risk of dementia². **Objective:** The aim of this study was to evaluate the reported link between AF and its characteristics, such as type and duration, and cognitive abilities in affected individuals.

Patients and Methods: 105 patients (63 males, 42 females, aged 67.29±24.54 years) from the University Hospital Centre Zagreb outpatient department were enrolled in the study. The average duration of paroxysmal AF was 46.52, and of persistent AF 87.94 Mo. The patients' cognitive abilities were evaluated using Mini Mental State Examination (MMSE). Other confounding factors were analyzed: body mass index, comorbidities (hypertension, diabetes, hyperlipidemia, ischemic heart disease, etc.), level of education, prescribed medications, blood biochemistry, and echocardiographic parameters.

Results: No significant differences between MMSE scores of patients with paroxysmal and persistent AF were found (27.43 in those with paroxysmal and 27.09 in those with persistent AF, $p=0.5698$). Statistical analysis also showed no correlation between the duration of AF and MMSE results ($r=-0.0805$, $p=0.451$), which was in contrast with predicted findings. However, we found a statistically significant difference between MMSE scores of patients grouped by their achieved level of education (24.60, 27.70, 28.25 and 28.22 in patients with primary, secondary, post-secondary and tertiary level of education, respectively, $p=0.00002$), and a correlation with estimated glomerular filtration rate ($r=0.199$, $p<0.05$) and heart rate ($r=-0.2291$, $p=0.026$). Female participants had lower MMSE scores than males (26.31 in females and 27.89 in males, $p=0.038$) and participants' age also affected their MMSE results ($r=-0.2866$, $p=0.003$).

Conclusion: The results of this pilot study do not support previously described correlations between the duration and type of AF and cognitive deterioration, at least not measurable by MMSE. Our results indicated that the strongest predictor of one's MMSE score is the achieved level of education. This research will be continued, and we expect more reliable results on a larger cohort of patients.

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LITERATURE

- Kalantarian S, Stern TA, Mansour M, Ruskin JN. Cognitive Impairment Associated With Atrial Fibrillation: A Meta-analysis. *Ann Intern Med.* 2013 Mar 5;158(5 Pt 1):338-46. <https://doi.org/10.7326/0003-4819-158-5-201303050-00007>
- de Bruijn RF, Heeringa J, Wolters FJ, Franco OH, Stricker BH, Hofman A, et al. Association Between Atrial Fibrillation and Dementia in the General Population. *JAMA Neurol.* 2015 Nov;72(11):1288-94. <https://doi.org/10.1001/jamaneurol.2015.2161>