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Atrial fibrillation causes cognitive impairment— which cognitive domains are affected?

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Introduction: Hypertension is an important modifiable risk factor related to cognitive dysfunction. Data suggest that atrial fibrillation (AF) is also associated with an increased risk of cognitive decline, independent of stroke history. Few studies focus on the effect of AF on specific cognitive domains. Purpose: We aimed in this study to investigate the prevalence of cognitive dysfunction among hypertensive patients with atrial fibrillation and to evaluate the impact of atrial fibrillation on the affected cognitive domains. Methods: In the present paper, we included 488 consecutive hypertensive patients admitted to a Cardiovascular Rehabilitation Clinic aged between 37-93 years (mean age: 68±10 years; 51.84% female; 48.15% male). Diagnosis of AF was based on 12 lead ECG. All types of AF (paroxysmal, persistent and permanent) were included. The prevalence of atrial fibrillation in our sample was 23.77% (n=116), on admission mean heart rate was 76±16 bpm and mean blood pressure 137/82 mmHg (+19/11 mmHg). After routine clinical assessment all participants completed the Montreal Cognitive Assessment (MoCA) test used for the detection of mild cognitive impairment. Depression as a confounding factor on cognitive performances was detected with the shortened 13 items form of Beck Depression Inventory (BDI-13). We compared MoCA scores of the group of patients with atrial fibrillation with scores from the group in sinus rhythm. Statistical analysis was performed with the IBM SPSS v.20 program. Results: Impairment in cognitive functions was revealed among hypertensive patients in sinus rhythm vs. with atrial fibrillation according to MoCA in 66.1% (n=246) vs. 81.9% (n=95). Cognitive scores were significantly lower in the atrial fibrillation group vs. patients in sinus rhythm: MoCA: 21.74 vs. 22.97 (p=0.016). The prevalence of depression in the two groups was not statistically different, AF 52.58% vs. 55.34% patients in sinus rhythm (p=0.89). Analysing MoCA’s cognitive domains, patients with atrial fibrillation had significantly lower scores in visuospatial/executive (3.09 vs. 3.52 p=0.005), language (1.59 vs. 1.85 p=0.019) and abstraction (1.18 vs. 1.41 p=0.005) domains. Conclusions: The prevalence of cognitive impairment is higher in patients with atrial fibrillation. Atrial fibrillation may have an impact on the most complex cognitive functions as visuospatial/executive, language and abstraction.