3. A NOVEL PERSPECTIVE ON HYPERTENSION AND COGNITIVE IMPAIRMENT: THE CHALLENGE OF THE MODERN WORLD

Author: Cucerenco Ruxanda

Scientific adviser: Marina Sangheli, MD, Associate Professor, Department of Neurology No.1, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. The brain is considered to be one of the main targets of hypertension (≥140/90mmHg), because a history of hypertension is proven to increase the risk of cognitive impairment. Several studies reveal the negative impact of hypertension on cognitive functions in patients without complications related to it, i.e. stroke. In the last years, more patients develop hypertension without a vascular condition, thus it was suggested the implication of the brain renin angiotensin system (RAS) as a precondition of hypertension. Its receptors (AT1) play a key role in the regulation of brain function. Their hyperreactivity is a major early injury factor of endothelial dysfunction and premature brain aging. Moreover, it is also a starting point of the pathological chain of various neuronal disorders, as well as cardiovascular diseases.

Aim of study. This study aims to compare cognitive deterioration attributable to normal aging and premature brain aging in patients with hypertension that do develop strokes and the ones who do not develop it.

Methods and materials. This was a single-visit, prospective, non-interventional, observational study conducted on 34 patients (53,12%) from the Institute of Neurology and Neurosurgery, Chisinau. MMSE and MoCA tests were used in order to assess their cognitive state. The patients were divided into the following groups: with hypertension and no stroke, with hypertension and stroke and the control group (30 patients=46,88%), all aged above 50. The study included 32 women (50%) and 32 men (50%). It also comprehends the latest studies on the topic, published in PubMed, NCBI and Google Scholar.

Results. The hypertensive patients (34 = 53,12%), both with stroke and without, displayed/presented impairment in all tests in comparison with the normotensive subjects (30 = 46,88%). The average points obtained in the MMSE test were 26,44±1,41 in the first group; 22,4±5,12 points in the second and 28,17±1,25 in the control group. For the MoCA test, the average points obtained were 26,8±2,04 for the first group; 22,7±5,73 for the second and 28,65±1,17 for the control group. The maximum for both tests is 30 points. The average values of hypertension are 149,6 mmHg; 158 mmHg and 129,31 mmHg respectively. The tests have the same degree of sensitivity for all of the groups ($p<0,001$) and proved easy to use in clinical practice. A negative correlation between hypertension and test scores was shown, in all of the groups studied, being stronger in the group with hypertension without stroke (-0,39). It means that higher systolic values give lower test scores.

Conclusion. There is conclusive evidence for the involvement of hypertension in premature brain aging. Hypertension is a risk factor for lower MMSE and MoCA test scores, which is directly correlated with the value of the systolic pressure. Therefore, neurocognitive tests are useful for early diagnosis of premature brain aging. It brings us a step closer to lowering the incidence of hypertension induced complications.