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## **THE ELDERLY AND OLD AGE CORRELATION OF INTRACRANIAL HEMO – AND LIQUORO- DYNAMICS SYSTEMS.**

**Moskalenko Yu.E., Weinstein G.B., Halvorson P., Ryabchikova N.A, Kravchenko T.I., Feiding A., Semernia V.N., Panov A.A., Mayorova N.F., Markovets S.P.**

*Sechenov Institute of evolutionary physiology and biochemistry, Russian Acad. Sci., St. Petersburg, Russia.*

It 's well known that the brain blood flow descends in old age. Recently by using of various tomography modifications (PET, NMR) it also was shown that the cerebrovascular reserve and brain mass decreases, but cerebrospinal liquid volume increases with age (1,2,6). The above is interesting in aspect of intracranial closely cooperation in circulatory-metabolic supply of brain activity (3). So it gives us the reason to suggest that the brain blood flow decrease may be compensated by liquorodynamics activation in a certain degree. In this connection the study of the age peculiarities correlation between hemo- and liquorodynamics systems with parallel estimate of intelligence indices HNA in elderly and old age is the aim of our investigation.

### **METHODS**

The study of features correlation between intracranial hemo- and liquorodynamics systems was realized with help analysis of simultaneous registries transcranial dopplerogram (TCD) and rheoencephalogram (REG) in the vascular tree of the brain middle artery (MCA), provided with blood the main cortex volume. For that TCDG in MCA basis M- 1 segment and REG electrodes in fronto-mastoidal position were registrated. The registration and analysis of above indices with ECG and thoracic respiratory movements in calm and in hemodynamic (30s breath arrest) and liquorodynamics (Stookey test) functional tests were performed using PS Macintosh OS10.2 zby way of analogous and digital converter Maclab-4. That allows us to estimate simultaneously blood flow in CMA and elucidate the liquor mobility as inside cranial cavity as between cranial and vertebral cavities (4). For estimation of effective brain activity, which depends on effectiveness of circular- metabolic brain activity provide psychophysiological method's evaluation of prognosis brain activity was used (5). In all 78 practical healthy persons rating per years in 3groups 36-45, 46-55 and 56-76 years and more aged were examined by way prognosis method of prediction elements in the sequence.

### **RESULTS**

The obtained data show that values of each researched indices and the correlations between them are significantly changes with age. So the blood flow in CMA in old age decreases to 60% of its value in youth, and its peripheric resistance grows a little. The age changes liquorodynamics are expressed in increasing of its activity that shows ease of liquor re flow as inside cranial cavity so between cranial and vertebral cavities. It follows from pattern analysis results of simultaneous registrated pulse waves TCDG and REG compared in certain respiratory phase and with R-R (ECG) interval normalizing and by square comparing of two-dimensional figures in TCDG-REG coordinates. At the same time psychophysiological research shows us that the mental prognosis possibilities estimated by number of mistakes in tests doesn't significantly change with age (fig.1). Slow REG (8-10 cycles /min.) were not significantly differing in all age groups that show the conservation relative stability of metabolic processes in brain with age. Taking at the same time the functional tests reactions show compensatory possibilities of researched systems under investigation (circulatory reserve) significantly decreases with age. So the blood flow's decrease in CMA vascular tree on account of sclerotic changes is compensated in certain degree by increasing of liquorodynamics, which promotes the increase of brain liquor spaces. Therefore the circulatory metabolic brain deficit is evinced to relative small degree. -At

aging liquor takes more part as in optimization of arterial and venous volume blood so in correlation of blood /liquor volume in different brain sections. That increases the efficiency of beat cardiac energy utilization for venous outflow from cranium and increases liquor meaning in convectional transfer of metabolic products in brain intercellular spaces.

#### CONCLUSION

The data obtained shows us that practically the intracranial liquorodynamics activation with the help manual-osteopathy methods may be one from efficiency means of prevention age circulatory deficit.

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Age related changes of indices of intracranial liquorodynamics, cerebral blood flow and cognitive abilities.

