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Title: SKULL BIOMECHANICS AND SCF DYNAMICS AS LIKAGE BETWEEN BRAIN PORTION OF HEART STROKE VOLUME AND CEREBRAL CIRCULATION

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Text: **Aim of investigation:** to elucidate the role of heart pulsation, which, together with perfusion pressure(PP), responsible for adequate brain circulatory-metabolic supply, namely skull biomechanics(SB) and cerebrospinal fluid(CSF) pulse circulation. **Methods:** evaluation of role of mentioned factors was based on simultaneous recordings of multifrequency (16, 100 and 200 kHz) head electrical impedance (MultiREG) by fronto-mastoid electrode position, which permits to monitor changes of intracranial liquid volume fluctuation and pulsations of transcranial Copplerographic(TCD) recordings of linear velocity of blood flow in basement of MCA, with corresponds to in basement of skull intracranial pressure fluctuation, with computer-aid data analysis. Such method approach permits to study pressure - volume relations inside skull and movements of CSF during pulse cycle. Three aging groups (jung 16-24, middle 30-50 and aging 75-90, including patients with dementia) have used at the present study. Quality of brain blood supply using psycho-physiological method "Prognosis" have been provided. **Results:** It was shown, that 25-35 % of stroke volume could by utilize due to skull expanding for 0.3-0.5% during systolic increase of arterial pressure and, then transmitting accumulated energy for destribution of blood volume in the scull and for outflow of venous blood from the skull. Decrease of pulse skull expanding and CSF mobility evoke diminish of brain blood supply, results of them may be brain circulatory and cognitive insufficiently. **Conclusion:** skull biomechanics properties and crania-spinal CSF mobility play significant role in mechanism of optimization of brain circulatory-metabolic supply under physiological conditions and may be reason for developing of cerebro-vascular unsufficiently.

Author Keywords: Skull mechanics, CSF mobility, stroke pattern, brain circulatory supply.cognitive disfunction.

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