

# THE STUDY OF ASYMMETRY OF THE BRAIN IN OLDER WOMEN THROUGH THE ASSESSMENT OF THE DISTRIBUTION LEVEL DC-POTENTIAL

Irina DEPUTAT, Anatoly GRIBANOV, Alexandra NEKHOROSHKOVA, Yuliya DZHOS

i.deputat@narfu.ru

NORTHERN (ARCTIC) FEDERAL UNIVERSITY (RUSSIA)

## THEORETICAL BACKGROUND

In the world of science is noted of great interest to the study of old age. In gerontology was denoted a complex problem - the need to study the laws of aging with a view to develop ways of optimization this process. In gerontomedicine and gerontopsychology are actively studied cognitive functions, emotions, personality changes in their old age. Upon that the study of the system age reconstructions of mental activity is impossible without defining of certain brain changes in the aging process.

It is known that brain aging is accompanied by a decrease in the number of neurons and compensatory plastic rearrangements that alter the functional hemispheric asymmetry and interhemispheric relations.

Hemispheric asymmetry is one of the fundamental laws of the brain, however, age-related changes of relations between the hemispheres of the brain are not well understood.

## METHODOLOGY

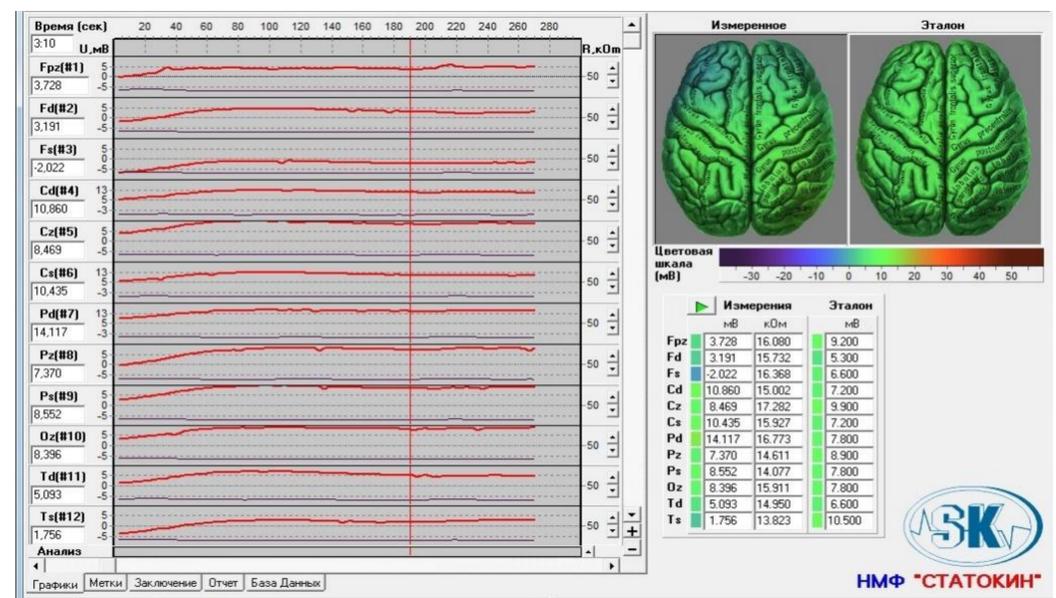
The study involved 97 women, aged 55 to 74 years. People with mental disorders were not included in the group.

Interhemispheric asymmetry was determined by estimating the difference in DC-potential level between symmetrical areas of the brain.

The DC-potential level was assessed through a software diagnostic complex "Neuroenergetics-03" (Russia, Moscow). This complex registers a DC-potential level is slowly varying steady potential mV range, one of the types of slow physiological processes. This potential is generated on the membrane of the blood-brain barrier and varied depending on the difference between the concentrations of hydrogen ions on opposite sides of the membrane. Usually vascular potentials characterizing the intensity of the energy processes in the brain are recorded on the surface of the scalp through depolarizing electrodes in the form of constant brain potentials. Recorded level the DC- potential of the brain and analyzed the potential difference between the symmetrical areas of the brain.

## RESULTS AND DISCUSSION

The DC- potential difference between the right and left frontal (Fd-Fs) and parietal (Pd-Ps) divisions showed the predominance of the left hemisphere. The DC-potential difference in the central (Cd-Cs) departments indicates the predominance of the right hemisphere, which may explain the variability of emotional tone in the elderly. In addition, the value of DC- potential in the left and right temporal leads (Td-Ts) were almost equal, indicating that the equality of women hemispheres in the study group and can be a sign of imbalance influences of regulatory systems and violations of adaptation functions of the brain. Smoothing interhemispheric differences probably reflect both involuntal processes that reduce the specialization of the hemispheres, as well as changes in cerebral blood flow, which decrease with aging more significantly in the left hemisphere. Dispersion interhemispheric difference the DC- potential in temporal leads increases approximately twice elderly persons compared with the same index in adulthood.



Determination of DC- potentials of brain on the device "Neuroenergetics-03"

