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Fund “Nauka” Project № 24007 Resume – Special Competition-based Session 24007:

“Biomarkers for assessment of inflammatory response, oxidative stress and dyslipidemia in patients with acute ischemic stroke - effect of recovery therapy with a nutritional supplement containing citicoline and plant extracts”

Project leader: Assoc. prof. Milka Asparuhova Nashar, PhD

The aim of the project is to study the role of molecular biomarkers for oxidative stress, dyslipidemia and inflammation in patients with acute ischemic stroke and the effect of restorative therapy with the food supplement Cytodeox, containing citicoline and extracts of chokeberry, green tea and rosehip.

The object of the study will be previously collected and reliably stored (at -80°C) blood serum samples and isolated RNA from lymphocytes of patients with acute ischemic stroke under an active scientific project (No. 21015), financed by the "Science" Fund, for which approval received from Research Ethics Committee (Protocol No 119/21.07.2022). The informed consent signed by each participant explicitly states that the samples will be preserved under appropriate conditions for future research. The collected and stored samples of 100 patients with acute ischemic stroke before and after supplementation with Cytodeox will be analyzed.

An innovative and original combination of **methods** will be applied:

1. Clinical activities – assessment of the disease course and severity of the disorders, as well as subgrouping by vascular territory of the stroke, concomitant diseases, medication intake;
2. Immunochemical method – determination of 8-iPGF2-alpha;
3. Chromatography – determination of vitamin D status;
4. Spectrophotometry – assessment of indicators of oxidative stress;
5. Molecular-biological methods – expression of specific cytokines and enzymes.

Expected results:

1. New data will be obtained on insufficiently studied markers of oxidative stress, assessing the process of lipid peroxidation in membranes;
2. Data will be obtained on vitamin D status, pro-inflammatory cytokines and enzymes, which are insufficiently studied in relation to ischemic stroke worldwide and in Bulgaria;

3. Data will be obtained on the expression levels of pro-inflammatory cytokines and enzymes related to the inflammatory response and oxidative stress in patients with acute ischemic stroke;
4. The changes of the studied biomarkers after recovery therapy with a nutritional supplement containing citicoline and plant extracts will be analyzed and evaluated;
5. Correlations between the serum levels of the investigated biomarkers and those of classical and specific biochemical markers will be investigated, which will allow the assessment of their reliability in relation to the course of the disease and the effect of citicoline supplementation.