



Fund “Nauka” Project № 20001 Resume – Competition-based Session 2020:

“Relationship between erythropoietin resistance and secondary hyperparathyroidism in dialysis patients”

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Chronic kidney disease (CKD) is a socially significant disease and the sixth most common cause of death among humans. Anemia and secondary hyperparathyroidism associated with chronic kidney disease lead to increased morbidity, mortality, reduced quality of life in predialysis and dialysis patients.

This research project aims:

1. To analyze the diagnostic and therapeutic aspects of secondary hyperparathyroidism in patients with CKD and their importance for the development of erythropoietin resistance;
2. To study the diagnostic and prognostic value of some markers for mineral and bone metabolism (including iPTH) and their correlation with markers of anemia (folic acid, vitamin B12, soluble erythropoietin receptor, antibodies against erythropoietin, etc.);
3. To compare the results of the treatment of secondary hyperparathyroidism and anemia and the required doses of medication;
4. To study the individual quality of life of patients with secondary hyperparathyroidism and anemia due to CKD;
5. To develop a diagnostic-therapeutic algorithm for correction of mineral-bone metabolism and anemia in patients with CKD.

All this will give better opportunities for patients with CKD to perform a kidney transplant and definitively cure CKD.

The **subject** of the study are adult patients with CKD G5D undergoing renal replacement therapy by hemodialysis or peritoneal dialysis at a nephrology clinic. The control group of pre-dialysis CKD patients are also regular patients at the nephrology clinic.

The methods that were used include medical examination, blood tests, filling in questionnaires for individual quality of life.

Results:

Theoretical contributions:

1. A detailed review of the literature on the nature of erythropoietin resistance and the factors that determine it has been done;
2. Such a follow-up was conducted for the first time in the country – to determine the level of erythropoietin resistance by direct examination of the titer of antierythropoietin antibodies, as well as to determine their dependence on other biomarkers;
3. The association between secondary hyperparathyroidism and erythropoietin resistance in patients with CKD has been demonstrated;
4. A number of biomarkers in patients in the risk groups of CKD – pre-dialysis and dialysis stage have been studied and combined with an assessment of the therapy;

Practical contributions:

5. Biochemical indicators have been studied, which are not routinely studied among the patients monitored in the Clinic of Nephrology of the University Hospital “St. Marina” – PTH, levels of folic acid and vitamin B12, as well as those not yet studied in the country (antierythropoietin antibodies, soluble erythropoietin receptor);
6. An algorithm for the diagnosis of erythropoietin resistance in patients with CKD has been developed;
7. The adequacy of the therapy in relation to the anemia and secondary hyperparathyroidism among patients in pre-dialysis and dialysis stages of CKD was assessed.