Lek. Ewelina Łukaszyk

Temat pracy: *„Żelazo a stan zapalny we wczesnych stadiach przewlekłej choroby nerek”*

Summary

Iron deficiency is a common (24-85%) complication of chronic kidney disease (CKD). There is growing evidence that iron deficiency itself, even before the onset of symptomatic anemia, deteriorates the quality of life, affects nutritional status and mortality in patients with CKD. Establishing a clear definition of iron deficiency anemia in predialysis patients with chronic kidney disease remains a significant challenge for nephrologists due to the ongoing subclinical inflammation state. It also remains the area of many currently conducted research. The discovery of hepcidin and the modulators of its synthesis (IL-6, growth differentiation factor 15 – GDF-15, hemojuvelin) was the metaphorical link binding iron with inflammation. Recent reports also suggest association between fibroblast growth factor 23 (FGF-23), a hormone previously described primarily in relation to the calcium-phosphate homeostasis, and iron deficiency. FGF-23 is also a risk factor of cardiovascular complications in patients with CKD that remains independent of the inflammatory parameters. Most studies conducted so far were focused on patients with end-stage renal failure and dialysis patients.

The aim of the study included in this doctoral thesis was to evaluate the correlations of new iron status parameters, FGF-23 and their relations with routinely measured indicators of iron and inflammation among patients in early stages of chronic kidney disease. Functional iron deficiency (FID), found in 11% of the studied population had significantly higher fibrinogen, ferritin and hepcidin concentrations compared to patients with absolute iron deficiency (17% of the studied population). Moreover, they had significantly higher CRP, hsCRP, GDF-15 concentrations as compared to patients with CKD without iron status abnormalities. A strong correlation between the GDF-15 and age, hsCRP and IL-6 in patients with FID has been shown. FGF-23 concentration was significantly higher among patients in early stages of CKD in comparison to the control group and was correlated with fibrinogen concentration and kidney function expressed as eGFR. No statistically significant correlations between FGF-23 and iron status parameters have been found.