



Fund “Nauka” Project № 20027 Resume – Competition-Based Session 2020:

“Etiology, clinical picture and diagnosis of non-alcoholic fatty liver disease in children and adolescents”

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Pediatric Non-alcoholic fatty liver disease (NAFLD) is defined as a chronic deposition of fat in the liver of children (up to 18 years) which is not caused by a genetic/ metabolic disorder, infection, use of steatogenic medications, consumption of alcohol or extreme undernutrition. The disease has gotten prominence in hepatology with the rise of the obesity and sedentary life style, not only in adults but in children as well.

Even though NAFLD can be inferred based on the combination of abdominal ultrasound and raised transaminases, their insufficient sensitivity and specificity make liver biopsy a golden standard in diagnosing pediatric NAFLD. Given the invasive nature of the procedure and its associated life threatening complications, current efforts are directed towards the development of noninvasive and reliable methods of diagnostics.

The **aim** of this study is to give information about the diagnostic usefulness of cytokeratin-18 (CK-18) levels, expression of specific micro ribonucleic acids (miRNA) and elastographic measurements in children with obesity and those at risk of NAFLD, compared to healthy controls.

The study is planned to involve 100 children or youths, divided into 3 groups: obese, obese with NAFLD and healthy controls.

The main **tasks and methods** of the study include:

1. Study of laboratory markers associated with hepatic steatosis (ALT, AST, GGT, lipid profile, HOMA-IR);
2. B-mode ultrasound study of the liver parenchyma;
3. Elastographic study of the liver with point shear-wave elastography (pSWE);
4. Expression of miRNAs, associated with hepatic steatosis and oxidative stress;
5. Comparison between the obtained results.