SUMMARY

HCV infection is one of the most prevalent liver diseases. Approximately 58 million people are still infected worldwide, which is a serious civilization problem. It is estimated that HCV infection affects around 150 000 people in Poland. In order to reduce the prevalence of infection with this virus and achieve the WHO goal of eliminating HCV, widely planned screening activities and rapid access to safe therapies with direct acting antiviral treatment are necessary. The introduction of new interferon-free therapies has revolutionized HCV treatment worldwide. Currently, these therapies last 8–12 weeks and give almost 100% chance of eradicating the virus. The challenge is therefore no longer the treatment itself, but screening tests aimed at quickly detection of infected people and conducting diagnostics.

Chronic hepatitis C develops for years, and patients are often accompanied by metabolic disorders. It is estimated that fatty liver affects on average over 50% of patients with HCV. Although observations show that the level of fatty liver disease in HCV infected patients is influenced by many factors, the relationship between fatty liver disease, the host, and the HCV virus itself remains unclear. Also in the face of effective therapies based on drugs with direct antiviral action, an interesting aspect is the effect of treatment on the severity of fatty liver disease and liver function.

The subject of this dissertation is the assessment of factors determining fatty liver disease, as well as the assessment of the correlation between fatty liver disease and fibrosis in the study group after interferon-free therapy. In addition, the effect of DAA treatment on fatty liver disease and improvement of liver function was examined.

The study included 52 individuals with CHC, who were patients of the Clinical Department of Infectious Diseases in Ostróda. Before treatment, all patients completed a questionnaire and were examined in detail. Measurements of liver steatosis and stiffness were also made using the transverse elastography method using the FibroScan device. The patients also had laboratory parameters such as: blood count, ALT, AST, GGT, albumin, HbA1c, glucose, insulin, prothrombin time and index, total bilirubin concentration, total cholesterol, triglycerides, LDL cholesterol, HDL cholesterol. Measurements were made at 3 time points: before treatment, 12 weeks after the treatment and 24–36 weeks after the treatment.

Observations from this dissertation show that among host-related factors, BMI, HOMA-IR and alcohol abuse independently determine fatty liver disease, while virus-related factors have a smaller effect on fatty liver disease. It was also shown that before treatment, patients with significant fatty liver disease >248 dB/m had a higher median HbA1c. A significantly

higher level of fatty liver disease was also observed in patients with first and second class obesity compared to patients with normal body weight or overweight. In addition, a positive correlation was shown between fatty liver disease and fibrosis before treatment, and after effective anti-HCV therapy, when the viral factor stopped acting, this correlation was not observed. After treatment, it was also observed that fatty liver disease remained at a constant level during the observation. However, after separating the group with significant fatty liver disease >248 dB/m, lower values of median fatty liver disease were observed after treatment compared to the baseline value. In this group of patients, it was also noted that as many as 73% of patients had normal transaminase activity. A downward trend in fatty liver disease during the observation was observed in patients with genotype 3. Observations regarding liver fibrosis showed a significant decrease in this parameter at each control point. After treatment, the platelet count, transaminase activity, GGT and albumin level also improved. The effect of treatment on lipid profile parameters was also demonstrated, as an increase in total cholesterol, HDL and LDL was observed.

In summary, the presented work has shown that host factors such as BMI, obesity, abdominal obesity, alcohol abuse, insulin resistance had a greater impact on the severity of steatosis than virus-dependent factors. Moreover, effective interferon-free treatment is associated with improved liver function and decreased fibrosis. And the observed decrease level of steatosis in the group of patients with genotype 3 supports the role of this genotype in the pathogenesis of steatosis.

Keywords: steatosis; HCV; direct-acting antivirals.