

# Nonalcoholic Fatty Liver Disease in Pediatric Obese Patients

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**Background:**

Nonalcoholic fatty liver disease (NAFLD) represents one of the most important chronic liver diseases and it is an important component of the metabolic syndrome in obese patients. As severity, it includes several clinicopathological entities such as simple steatosis, nonalcoholic fatty liver (NAFL), nonalcoholic steatohepatitis (NASH) and NASH cirrhosis.

**Aims of study:**

To evaluate the presence of NAFLD diagnosed in obese children (BMI >97<sup>th</sup> percentiles for age and sex) and the metabolic complications associated.

**Material and method:**

The study took place in the Endocrinology Department of Children's Hospital, Timișoara, România between June 2017 and December 2018. Obese patients (age 3-18 years old) diagnosed with NAFLD based on the ESPGHAN guidelines (ultrasound aspects characteristic to steatosis or steatohepatitis, without any history of alcohol consumption and no liver diseases associated) were studied. They were anamnestic (gestational age, birth weight, birth height), clinical (liver size, acanthosis nigricans, blood pressure), anthropometrical (weight, height, BMI, abdominal circumference), biological (liver enzymes, lipidic and carbohydrate metabolism, OGTT test, HOMA-IR) and imagistic (liver ultrasound and Fibroscan) evaluated.

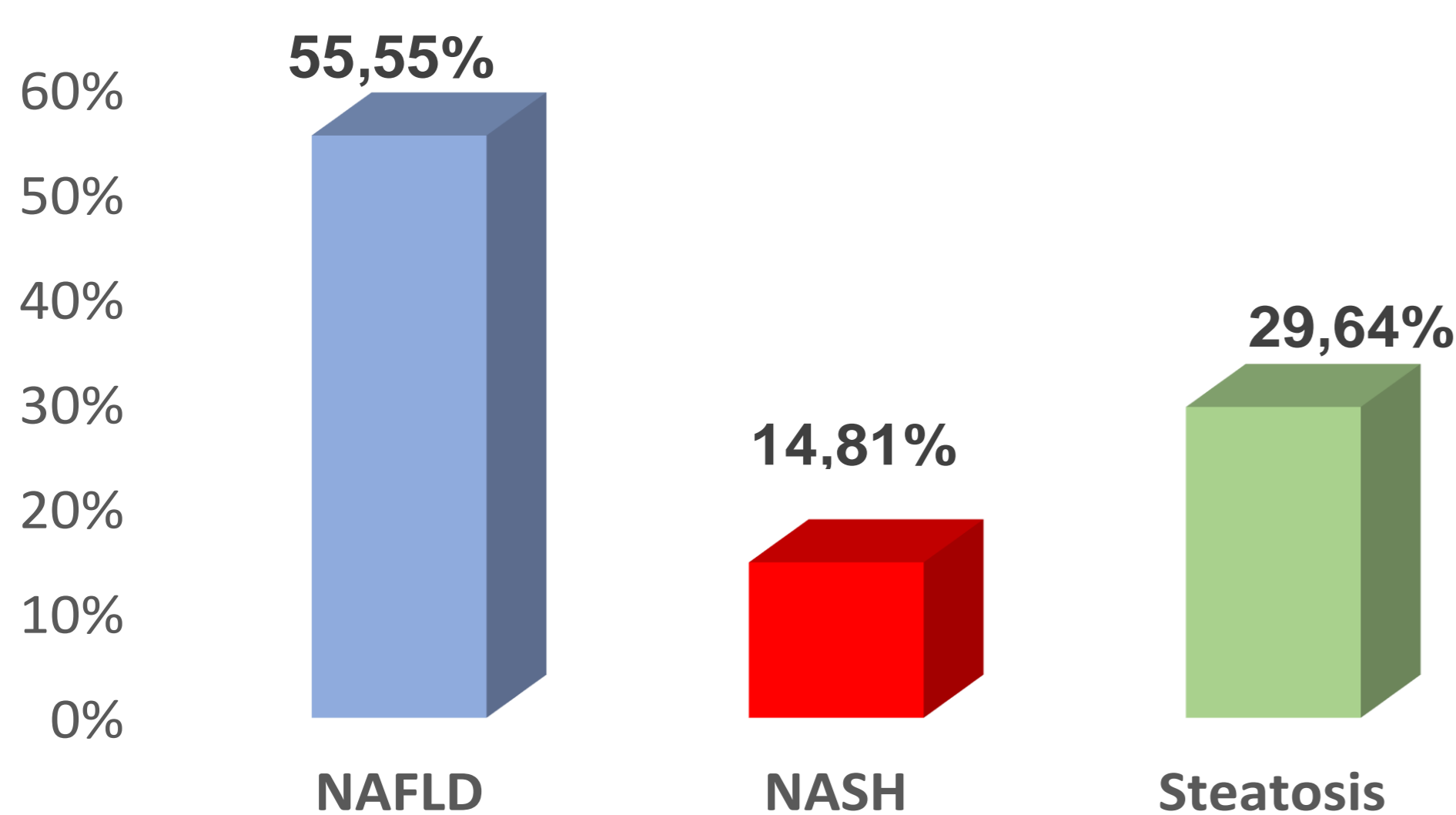


Figure no.1 Distribution of patients with NAFL based on severity

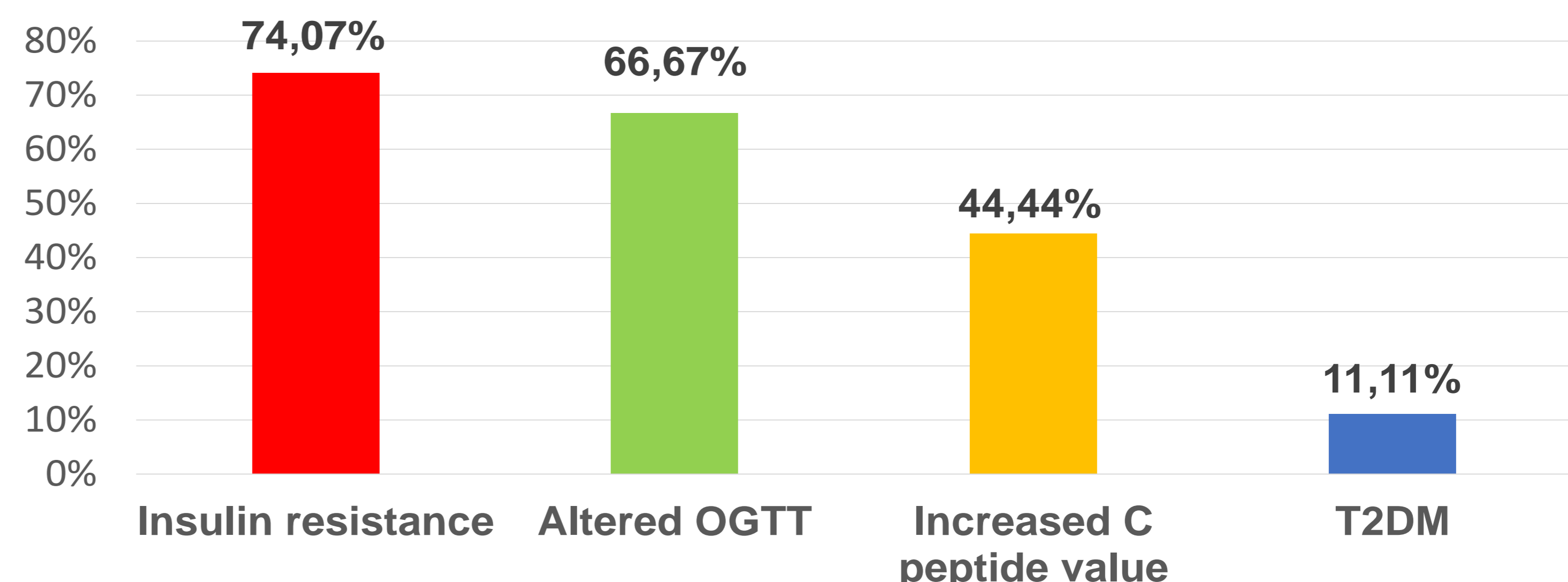
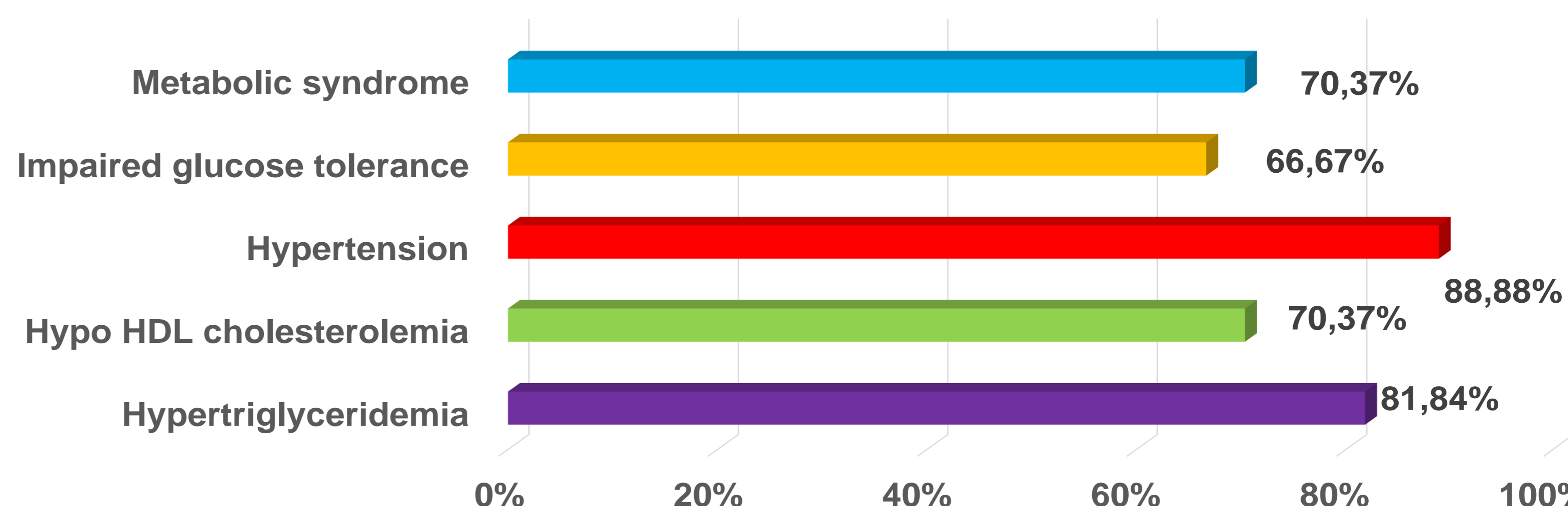


Figure no.2 The carbohydrate metabolism abnormalities encountered

**Results:**

Out of 126 obese patients admitted in the department during the study, 27 children (mean age=16.3 ±2.9 years) were diagnosed with NAFLD (21.42%). Most of these patients (74.07%) were adolescent, half of them were boys and a quarter small for gestational age. The distribution of patients with NAFLD based on severity is described in Figure no.1. At FibroScan evaluation, 51.85% of children were identified with minimal fibrosis and in 18.51% of them moderate fibrosis was found, with a median of liver stiffness value of 7.6 (5.5–9.3) kPa. Regarding the carbohydrate metabolism, the abnormalities encountered are presented in Figure no.2. They all have at least one of the components of the metabolic syndrome (Figure no.3) with a mean waist circumference measured of 94.7 cm, while 70.37% were diagnosed with the metabolic syndrome. Diet was recommended to all children, Metformin was prescribed in 74.07% of cases, while antihypertensive drugs in 88.88% of patients

Figure no. 3 The distribution of the metabolic syndrome and its components



**Conclusions:**

1. Pediatric obesity is increasingly lately. 2. Due to its tendency to progress, early diagnosis and treatment of NAFLD are important issues at all ages. 3. Fibroscan is a non-invasive tool with satisfactory accuracy to estimate NAFLD in obese children. 4. Treatment should address not only the NAFLD itself but also the entire spectrum of comorbidities of obesity.

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