# Which marker is the most reliable one for the detection of NAFLD in outpatient clinic?

Elif Ozsu[1], Bahadır Yazıcıoglu[2]
1.Samsun Obstetrics and Children Hospital
2.On dokuz Mayıs University School of Medicine, Department of Famiy Medicine

## Introductions and Objectives

Non-alcoholic fatty liver disease (NAFLD) has become a public health issue because its incidence increased 3-fold during the last 3 decades among children and adolescents. Although liver biopsy is the gold standard to determine NAFLD, its applicability is low in childhood. Thus, some noninvasive markers are being used more commonly. We aimed to find the most reliable marker to detect NAFLD in routine examination.

## Methods

We included 367 obese children and adolescents with or without NAFLD in our study. We used BMI percentile to determine obese patients. Bloood glucose, insulin, liver enzymes, blood lipid profile, uric acid and thyroid hormone levels were analysed. Abdominal ultrasonography was performed in all patients by the same radiologist, and steatosis was graded. Homeostasis model of assesment was used to determine resistance to insulin. Patients were classified according to their steatosis findings as Group1 and Group 2(Table 1)

## Results

A total of 367 patients were analysed. 198 patients were female and 169 were male. The mean age of the cases was 11.9±3.18 years (6.0-17.9), and their mean birthweight was 3,252±688 g (650-6,000 g). Hepatosteatosis was detected in 41%. Grade 1 steatosis was present in 80% of subjects. Hyperinsulinism was found in 39% of patients. There was a significant difference between the two groups regarding the age, sex, BMI and finding of hyperinsulinemia ($p<0.05$). Uric acid, AST, ALT, HDL, TG, VLDL, insulin and Homa-IR were also different between the groups ($p<0.05$). Sex, BMI, HDL were found to be of higher predictive value. Being female was shown to increase the risk of having NAFLD 0.47 times. Besides, 1 unit increase in HDL and BMI increased the risk of NAFLD development 0.97 and 1.10 times, respectively.

**Conclusion:** Male sex, low HDL and high BMI levels seem to be associated with hepatosteatosis, and these factors should be taken into consideration when evaluating patients in outpatient settings.

Table 1: Differences between two Groups

| | | Steatosis | | p* |
|---|---|---|---|---|
| | | NAFLD(-) (n=143)(G1) | NAFLD (+) (n=210)(G2) | |
| TSH (µIU/ml) | | 2,20 (0,68-7,97) | 2,12 (0,50-11,80) | 0,627 |
| T4 (µg/dL) | | 1,06 (0,30-1,88) | 1,04 (0,48-1,50) | 0,467 |
| Uric Acid (mg/dL) | | 4,8 (2,5-7,8) | 5,4 (2,9-10,0) | <0,001 |
| AST (U/L) | | 20 (11-52) | 23,7 (9,9-93,0) | <0,001 |
| ALT (U/L) | | 17 (8-131) | 24,4 (7,6-179,0) | <0,001 |
| AST/ALT | | 1,16 (0,40-2,11) | 0,92 (0,46-2,89) | <0,001 |
| Platelet (/µL) | | 319000 (30000-3730000) | 310000 (38100-3930000) | 0,568 |
| APRI (Plt/AST) | | 0,006 (0,001-0,137) | 0,007 (0,001-0,050) | <0,001 |
| HDL (mg/dL) | | 47 (24,5-92,0) | 43 (24,9-86,0) | 0,001 |
| LDL (mg/dL) | | 97 (42,3-207,0) | 99 (42-339) | 0,988 |
| TG (mg/dL) | | 97 (42-265) | 104,8 (31,3-516,0) | 0,027 |
| TG/HDL | | 2,11 (0,47-7,08) | 2,61 (0,49-16,65) | 0,001 |
| VLDL (mg/dL) | | 19 (8,5-53,0) | 22 (6,2-103,0) | 0,019 |
| FBG (mg/dL) | | 89,8 (73,0-11,1) | 88,8 (70,9-158,0) | 0,207 |
| İnsülin (µIU/ml) | | 13,6 (2,0-74,5) | 18,3 (2-72) | <0,001 |
| HOMA-IR | | 2,98 (0,42-19,50) | 4,03 (0,45-26,53) | <0,001 |
| OGTT | | | | |
| OGTT(+) | | 47 (35,6) | 85 (64,4) | 0,035 |
| OGTT(-) | | 34 (23,9) | 108 (76,1) | |
| | Total Insulin (n=142) | 485 (109-1198) | 481 (114-3745) | 0,624 |
| | <300 | 9 (47,4) | 10 (52,6) | 0,018 |
| | ≥300 | 25 (20,3) | 98 (79,7) | |

55ESPE 509--P2
Fat metabolism and Obesity
Elif Ozsu
DOI: 10.3252/pso.eu.55ESPE.2016
Poster presented at: ESPE 2016 PARIS 10-12 SEPTEMBER