

# Nonalcoholic fatty liver disease: Evolution after one year of follow-up with different therapies

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## Background:

Fatty liver disease is diagnosed increasingly in obese children, which pathophysiology remains unexplained. Risk factors as insulin resistance, evolution of steatosis and hypertriglyceridemia, should be taken into consideration in its development.

## Objective and hypotheses:

To analyse the prevalence of hepatic steatosis identified by ultrasound, as well as features and anthropometric data in our population divided into 2 groups: with steatosis and without steatosis, to assess the risk factors. To determine the influence of those risk factors and assess their evolution, patients with steatosis were further subdivided into 2 groups (treated with diet and exercise versus treated with diet, exercise and metformin) one year after diagnosis.

## Method:

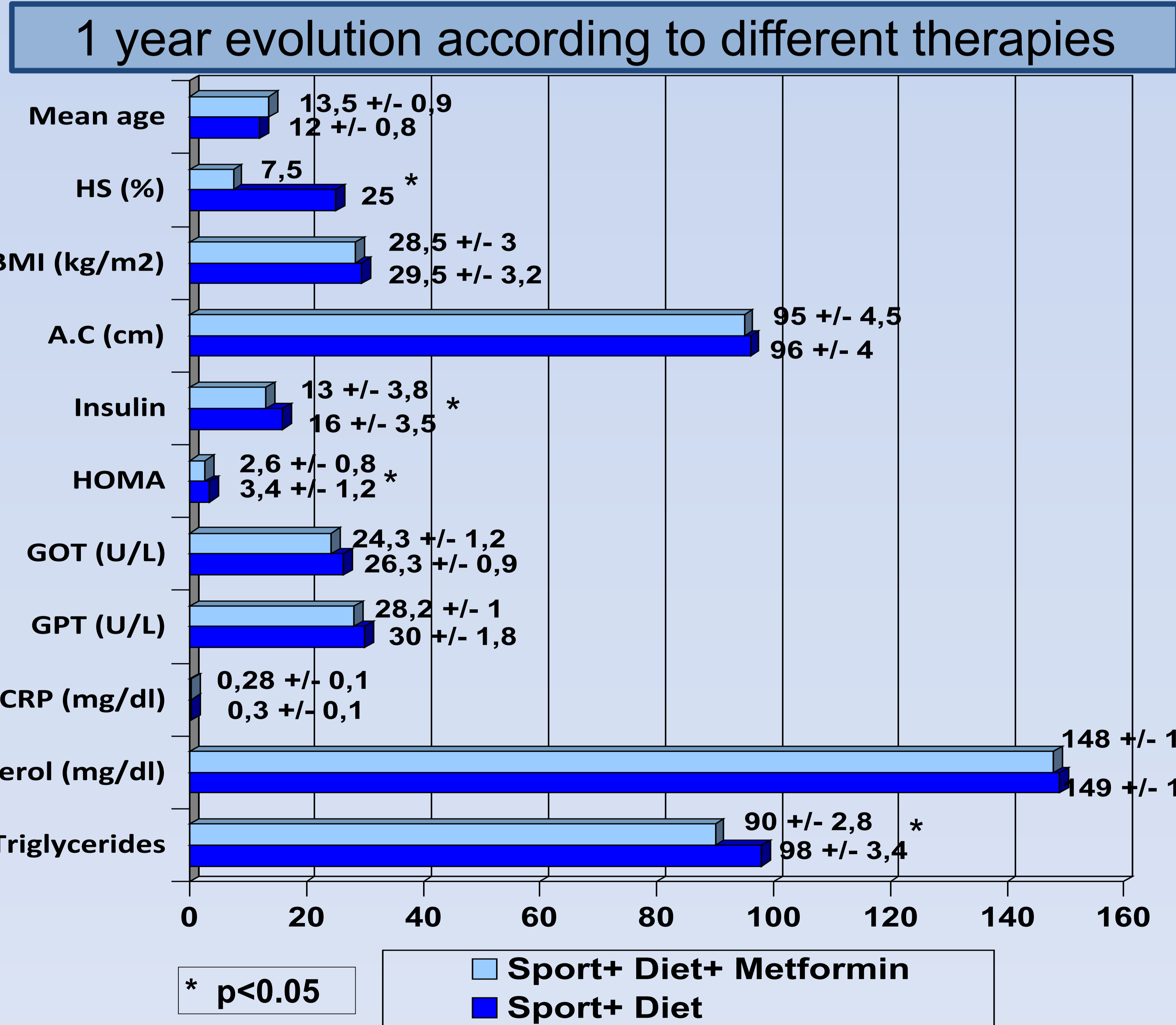
In this cross-sectional study, 190 children aged 5-14 with BMI>2SD were evaluated from 1st January 2012 to 31st May 2015. Anthropometric data, family history, biochemical parameters as fasting glucose, fasting insulin, lipid profile, index (HOMA-IR) and liver profile were evaluated. Liver ultrasound was performed to grade the presence of hepatic steatosis. All patients underwent to OGTT. The identification of hepatic steatosis was evaluated at the beginning and after one year of evolution as therapy used. Metformin was given to patients with the criteria: Age>11years, HOMA> 3,5 and/or index glucose:Insulin> 0.6 at 120' in OGTT. Student t test was used to compare patient groups.

## Results:

In the cohort of 190 patients, 70 presented within hepatic steatosis (36,7%). The prevalence of family history of obesity in subjects with steatosis was 60%. The population was equal about sex. Patients with steatosis were further subdivided into 2 groups of treatment (30 treated with diet and exercise versus 40 treated with diet, exercise and metformin). The prevalence of steatosis, after one year, was 25% vs.7,5% (p<0,05). Fasting insulin was 16+/-3,5mIU/ml vs.13+/-3,8 mIU/ml (p<0,05) and triglycerides were 98+/-3,4mg/dl vs.90+/-2,8mg/dl (p<0,05). There was no significant difference in the BMI, abdominal circumference, total cholesterol and the hepatic transaminases.

LEVELS OF GLUCOSE, INSULIN AND HOMA			
VARIABLES	HS	NO HS	p
Glucose (mg/dl)	85 +/-9	83 +/- 9	NS
Insulin	Tanner I - IV (70)	14+/-5,2 (120)	p<0,05
	Tanner I - II (32/70)	11+/-2,5 (74/120)	P=0,05
	Tanner III - IV	16 +/- 3,5	p<0,005
HOMA-IR	Tanner I - IV	2,9+/-1,1	p = 0,003
	Tanner I - II	2,3+/-0,9	P=0,05
	Tanner III - IV	2,83+/-0,48	P<0,001

BIOCHEMICAL CHARACTERISTICS OF BOTH GROUPS			
VARIABLES	HS	NO HS	p
Cholesterol (mg/dl)	160+/-20	157+/-17	NS
HDL-C (mg/dl)	39+/-4	48,8+/-3,8	p=0,003
TG (mg/dl)	123,1+/-6,4	74,4+/-4,3	p<0,005
GOT (U/L)	40+/-4,7	26+/-2	p<0,005
GPT (U/L)	49+/-3,8	37+/-1,5	p<0,05
PCR	0,4+/-0,1	0,21+/-0,1	p<0,005



## Conclusion:

In our study the prevalence of fatty liver is high (36.7%), related with obesity, tryglycerides and insulin resistance. Although weight loss contributes to reverse steatosis, patients treated with metformin get better results and evolution.

