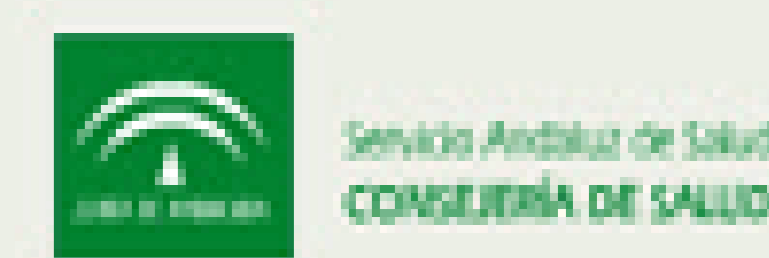


# Non-alcoholic hepatic steatosis in obese children and the relationship with insulin resistance

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**Background:** Hepatic steatosis is common in obese children. The pathophysiology remains unexplained but it is known that insulin resistance and hypertriglyceridemia are involved 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.

**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) uric acid and the presence of acanthosis nigricans were evaluated. Liver ultrasound was performed to divide into 2 groups. All patients underwent to OGTT. Statistical analysis was performed by SPSS13.0 program.

**Results:**

190 patients(51%male and 49% female).We found (36.84% had steatosis vs 63.15% without steatosis). Subjects with hepatic steatosis had mean age(13 +/- 1.7years vs.subjects without steatosis 10.4 +/- 1.4years) p<0.05. The prevalence of family history of obesity in subjects with steatosis was higher (60% vs.44%) p<0.05, as well as BMI (31.7+/-2.2 vs.26.7+/-1.3)p<0.05, abdominal circumference (100+/-8cm vs.90+/-15cm)p<0.005, fasting insulin (17.5+/-3.5mIU/ml vs.14+/-5.5 mIU/ml) p<0.05, (HOMA-IR) (3.8+/-1.5 vs.2.8+/-1.1) p<0.05, triglycerides (123.1+/-6.4mg/dl vs.74.4+/-5.3mg/dl) p<0.005, GOT (40+/-4.7 U/L vs.26+/-2 U/L) p<0.005 and GPT (49+/-3.8 U/L vs.37+/-1.5 U/L respectively) p<0.05 .High-density lipoprotein cholesterol was lower in subjects with steatosis compared to those without(39+/-4mg/dl vs.48.8+/-3.8mg/dl

LEVELS OF GLUCOSE, INSULIN AND HOMA				
VARIABLES	HS	NO HS	p	
Glucose (mg/dl)	85 +/-9	83 +/- 9	NS	
Insulin	Tanner I - IV	17,5 +/-3,5 (70)	14+/-5,2 (120)	p<0,05
	Tanner I - II	13,4 +/-1,8 (32/70)	11+/-2,5 (74/120)	P=0,05
	Tanner III - IV	22,6 +/-1,7	16 +/- 3,5	p<0,005
HOMA-IR	Tanner I - IV	3,8 +/-1,5	2,9+/-1,1	p = 0,003
	Tanner I - II	2,8+/-0,5	2,3+/-0,9	P=0,05
	Tanner III - IV	4,2+/-0.9	2,83+/-0,48	P<0,001

	HEPATIC STEATOSIS	NO HEPATIC STEATOSIS	P
N	70	120	
MEAN AGE	13+/-1,7	10,4+/-1,4	P<0,05
FAMILY HISTORY	42/70=60%	53/120=44,1%	P<0,05
IMC	31,7+/-2,2	26,7+/-1,3	P<0,05
ABDOMINAL CIRCUNFERENCE	100+/-8	90+/-15	P<0,005
FASTING INSULIN	17,5+/-3,5	14+/-5,5	P<0,05
TRIGLYCERIDES	123,1+/-6,4	74,4+/-5,3	P<0,005
CHOLESTEROL	160+/-20	157+/-17	
HDL	39+/-4	48,8+/-3,8	P<0,003
GOT	40+/-4,7	26+/-2	P<0,005
GPT	49+/-3,8	37+/-1,5	P<0,05

**Conclusion:**

The prevalence of hepatic steatosis in our population is higher than other published reports. Our results show that hepatic steatosis is related with increased BMI, abdominal circumference, hypertriglyceridemia and (HOMA-IR) Furthermore these parameters could be used to assess the risk of developing steatosis.