THE RISK OF METABOLIC SYNDROME AMONG DYSLIPIDEMIC CHILDREN AND ADOLESCENTS.

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Background: Lipid assessment is emerging as a useful and easy detectable tool to define the overall cardiovascular risk in children and adolescents. Nevertheless, not all dyslipidemic patients are affected by the same cardio-metabolic consequences.

Objective and hypotheses: To explore and establish suitable parameters allowing an early detection of metabolic syndrome (MetS) among dyslipidemic children and adolescents.

Method: 700 dyslipidemic children and adolescents referred to our endocrine outpatient clinic were screened for MetS according to Weiss' definition. Anthropometric, clinical and biochemical parameters were collected in the whole population.

Results:

1. Prevalence of MetS among dyslipidemic patients

MetS 8.7% (61/700)

No-MetS 91.2% (639/700)
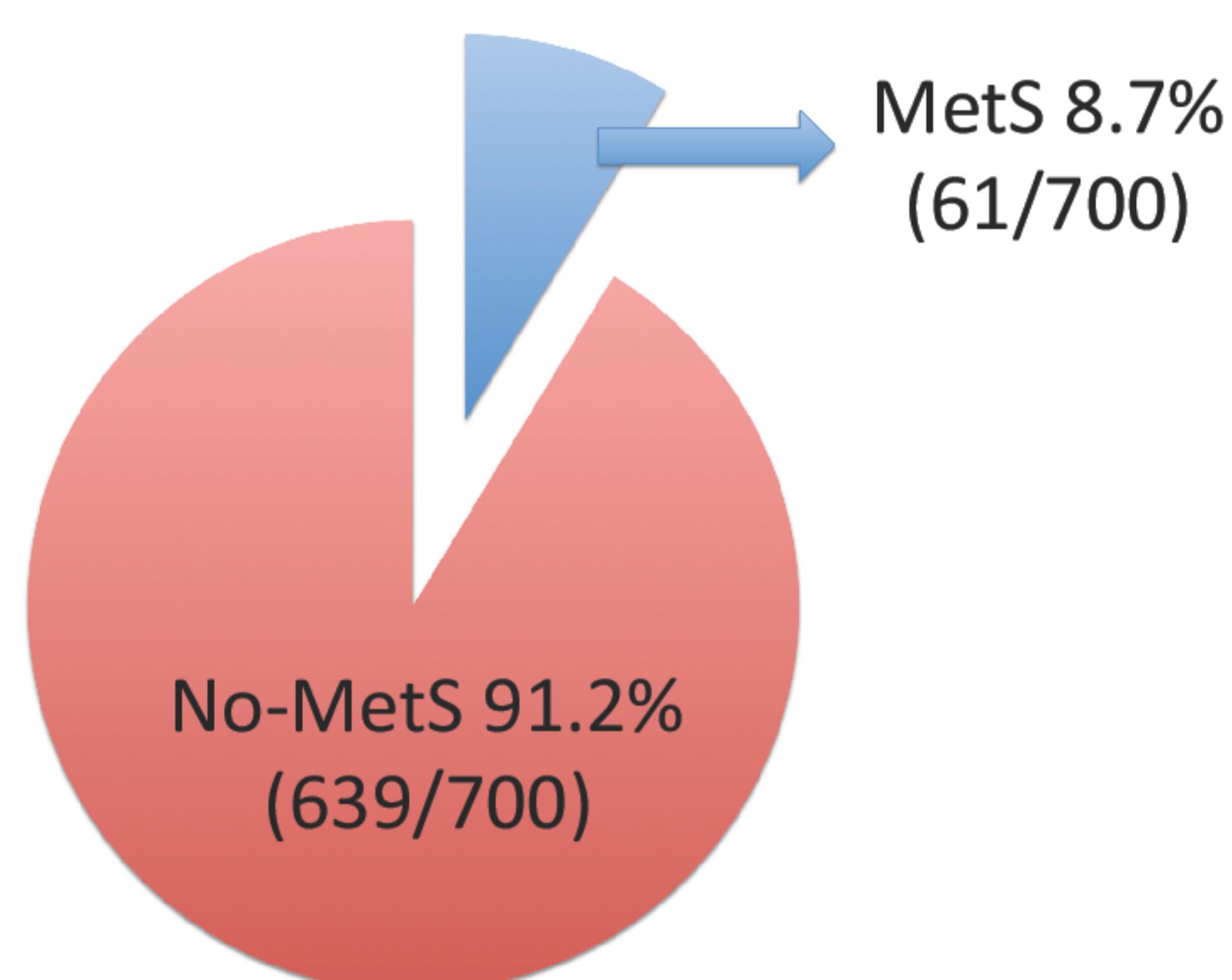
2. Anthropometric data :

|	MetS	No-MetS
Age (years)	10.7±2.5	10.1±2.7*
Male (%)	64	57
Height SDS	1.1±1.2	0.4±1.5*
BMI SDS	2.3±0.3	1.3±1.3*
W-hip ratio	0.9±0.1	0.9±0.1
WHeR	0.6±0.0	0.5±0.1*

Legend: SDS, Standard Deviation Score; W-hip ratio, Waist-to-hip ratio; WHeR, Waist-to-height ratio; * $p < 0.05$

4. Biochemical data:

	MetS	No-MetS
TC (mg/dl)	171.8±36.3	187.2±49.2*
LDL-C (mg/dl)	107.9±33.1	118.1±43.9
HDL-C (mg/dl)	39.8±13.9	53.0±13.6*
TG (mg/dl)	150.1±66.4	90.2±55.4*
LDL/HDL ratio	2.9±1.1	2.3±0.9*
TC/HDL ratio	4.6±1.4	3.6±1.1*
G (mg/dl)	88.1±9.3	85.5±7.8
Ins (uIU/ml)	22.0±18.5	13.0±8.0*
G/Ins	6.6±7.0	9.8±8.7*
HOMA index	4.9±4.2	2.8±1.8*

Legend: TC, total cholesterol; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; TG, triglycerides; G, fasting glycaemia; Ins, insulin; *, $p < 0.05$

3. Prevalence of Hypertension:

MetS vs. **No-MetS**

74%

22.5%

■ Hypertension in MetS   ■ Hypertension in No-MetS
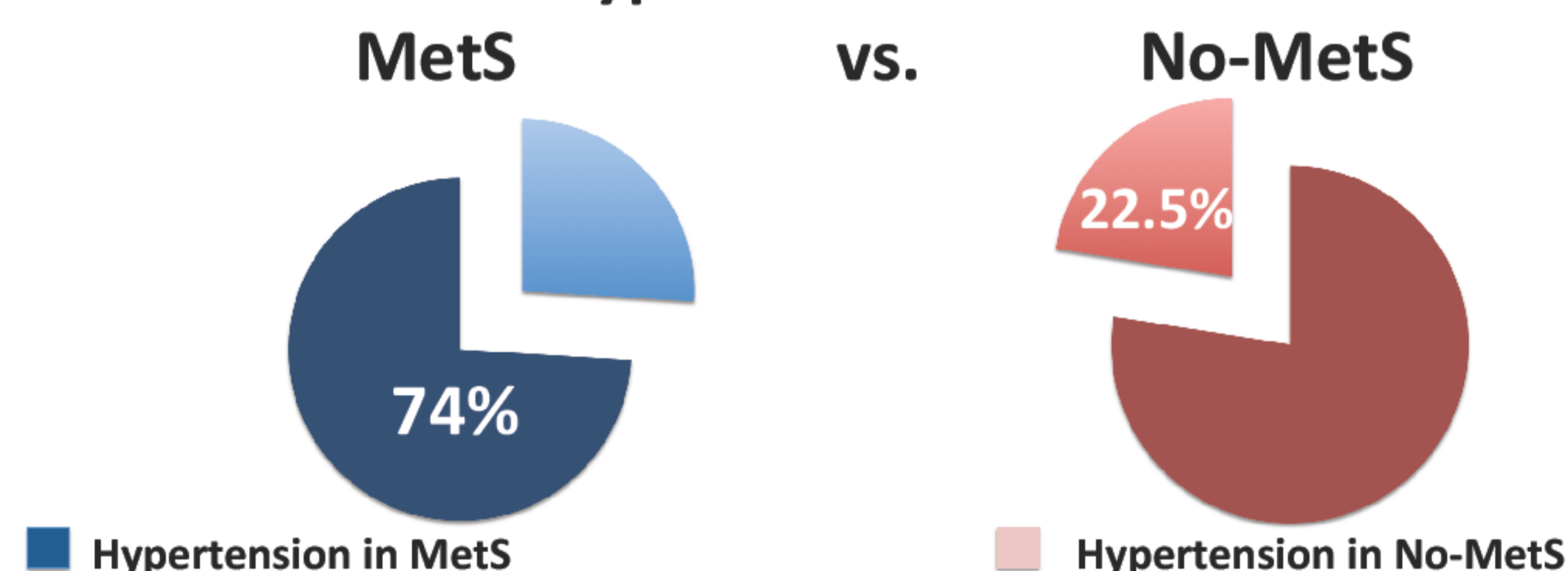
5. Multivariate analysis

Among all dyslipidemic children, TG levels (p <0.05, β 0.3) together with G/Ins (p <0.05, β 0.2) and HOMA index (p <0.05, β 0.3) were identified as independent predictive factors for MetS.

Conclusions:
- Confirming previous data, in our outpatient setting of dyslipidemic children and adolescents, the finding of high TG and low HDL levels helps in discriminating patients with MetS, especially when associated with increased BMI-SDS, insulin resistance and high systolic blood pressure.

- **Our data highlight the presence of a cluster of conditions that concurrently increase the cardio-metabolic risk already in childhood and adolescence and, therefore, that have to be globally investigated.**

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