CONTINUOUS SCORE OF METABOLIC SYNDROME (sSMp) IN CHILEAN PEDIATRIC POPULATION IS ASSOCIATED WITH INSULIN RESISTANCE PARAMETERS AND SUBCLINICAL ENDOTHELIAL INFLAMMATION.

Carolina Loureiro P. , Gabriel Cavada, Rodrigo Bancalari ,Andrea Vecchiola, Alejandra Tapia, Rene Baudrand, Carmen Campino , Cristian Carvajal, Carlos Fardella, Alejandro Martínez-Aguayo, Hernán García B.
hgarciab@med.puc.cl

Poster Code: P1-338

Background

The dichotomous nature of the definition of Metabolic Syndrome (MS) in both children and adults can under-diagnose subjects at risk and prevents adequate follow-up of therapeutic interventions. Recently, a continuous score of MS was validated in the pediatric population based on the IDF criteria for a population> 16 years.

Aims

1) To apply sSMp in a Chilean pediatric population cohort and correlate it with parameters of Insulin Resistance and subclinical endothelial inflammation.

Subjects and methods

- We studied 385 subjects (47.2% women), of 11.5 ± 2.8 years of age.
- Anthropometry, systolic blood pressure (SBP) and diastolic blood pressure (DBP) were performed. Insulin, glycemia, triglycerides,HDLcol, LDLcol, GOT, GPT, IL6, PAI-1, usCRP, TNF-alpha and adiponectin were determined and the HOMA-IR was calculated.
- The sSMp was calculated according to the following formula:

$$PsiMS\,score = \frac{2\,x\,Waist}{Height} + \frac{Gly\,(mmol/l)}{5.6} + \frac{Tg\,(mmol/l)}{1.7} + \frac{TA\,systolic}{130} - \frac{HDL\,(mmol/l)}{1.02}$$

- Pearson correlation (R) was used to evaluate associations between the variables. Subsequently, a linear regression adjusted for confounding variables of metabolic disorders such as age, sex and BMI. ROC curves were used for sensitivity and specificity analysis.

Results

- 41.51% were overweight and 17.4% were obese. The waist / height ratio was 0.51 ± 0.07, SBP 112.5 ± 13.7 mmHg, blood glucose 85.8 ± 6.2 mg / dL, TG 77 ± 53.6 mg / dL, HDL 50.4 ± 12.1 mg / dL. .

Fig. 1: sSMp correlation with nutritional status

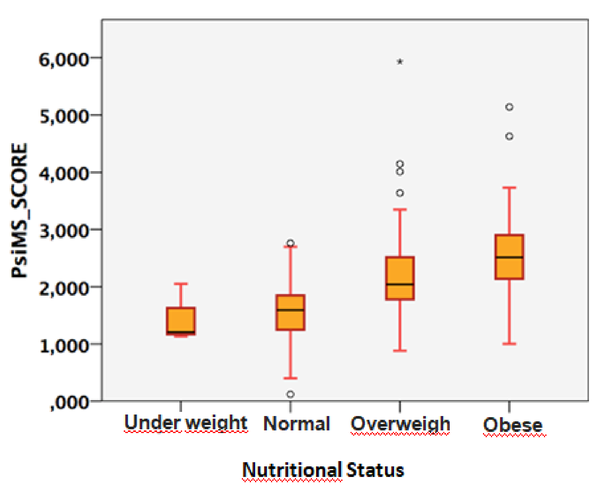
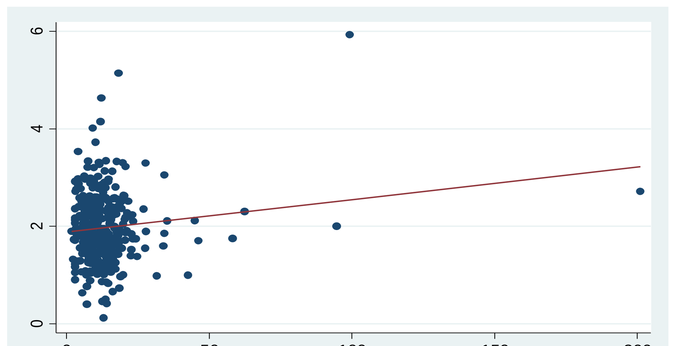


Table 1: Correlations between sSMp with insulin resistance parameters and subclinical endothelial inflammation, univariate and adjusted for confounding variables.

Parameters of Insulin Resistance	R	R adjusted for age, gender and BMI
Insulin	0.39**	0.31**
Glicemia	0.235**	0.26**
HOMA	0.398**	0.32**
GPT	0.268**	0.26**
TG/HDL-col	0.825**	0.93**
Parameters of subclinical endothelial inflammation		
IL6	0.131*	0.17*
PAI-1	0.281**	0.27**
usPCR	0.22**	0.17*
Adiponectine	-0.309**	-0.25**

**p<0.001, *p<0.05.

Fig. 2: IL-6 and Tgl / HDL & sSMp in 387 Chilean children



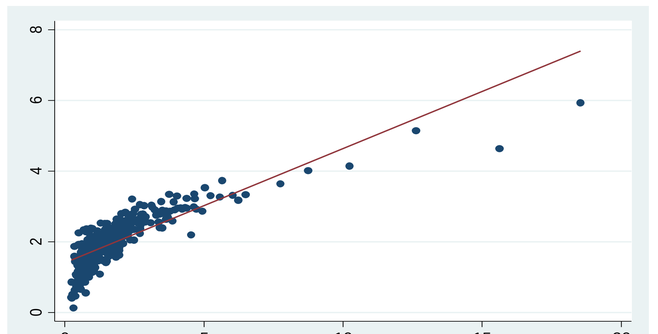
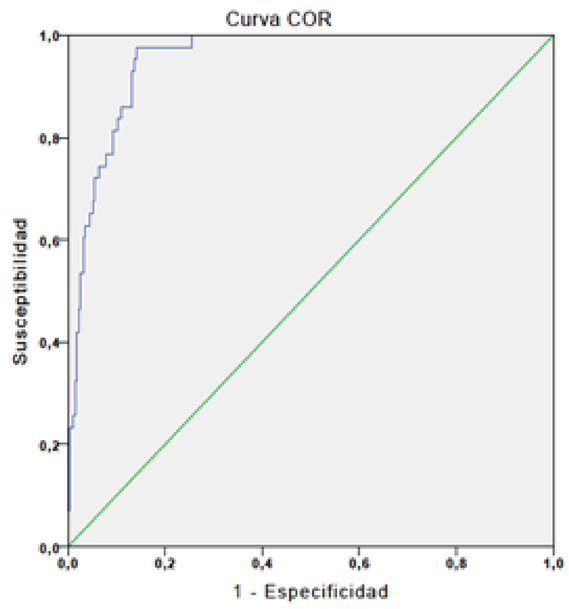


Fig. 3: Figure 3: Average HbA1c in patients with (+) and without (-) depressive symptoms



Pearson correlation of sSMp with ordinal COOK (0 to 5): r 0.719, (p <0.001)

sSMp has an area under the curve of 0.952 to predict SM according to COOK: present-absent (> 3 components)

Fig. 4: Sensitivity and Specificity of sSMp to predict MS (Cook)

sSMp	Sensitivity	Specificity
> 2	100%	65%
> 2.5	86%	88%

Conclusions

- To our knowledge, this is the first study that validates the sSMp and its association with parameters of insulin resistance and subclinical endothelial inflammation in the pediatric population, even when adjusting for confounding factors.
- Future studies will be necessary to establish a sSMP cut-off point, capable of individually validating this prediction of cardiometabolic risk.