C Reactive Protein: a marker of adiposity or cardiometabolic comorbidities of pediatric obesity?

Andreia Teles[1], Carla Rego[1,2], Claúdia Dias[3], João-Tiago Guimarães[4,5]

[1]Nutrition Unit, Pediatrics Department & [4]Clinical Pathology Department, Hospital S. João; [2]Pediatrics Department, [3]Biostatistics and Medical Informatics (CINTESIS) & [5]Biochemistry. Faculty of Medicine - University of Porto. Portugal

Background/Aims: Childhood obesity is a public health problem. The association between obesity and low-grade inflammation is well established. Our aim is to evaluate the association between C Reactive Protein (CRP) and cardiometabolic comorbidities in pediatric obesity.

Material and Methods: obese children/adolescents with nutritional obesity followed in our outpatient clinic (n=354) were included. Duration of disease (years), BMI Z-score (CDC), percentage of fat mass (DXA) and waist circumference were evaluated. Blood pressure, lipid profile and CRP were measured and HOMA IR was calculated.

Results: the mean chronological age was 10.1 years (SD 3.2; min=1.7; max=16.9) with no differences between gender.

Same data related to descriptive analyses can be observed in Table 1.

	Total (n=354)	Females (n=182)	Males (n=172)	P
BMI- *Zsc*	4.1 (1.7)	4.0 (1.7)	4.2 (1.8)	0,465
Waist (%90thPc)	117.7 (12.4)	118.2 (15.9)	116.4 (11,4)	0,076
%Fat mass – (DXA)	45.8 (6.1)	47.2 (5.7)	44.3 (6.2)	*0.002*
CRP	0.31 (0.4)	0,32 (0.4)	0.31 (0.4)	0.581

BMI – body mass index; Pc – percentil; DXA – dual –energy X-ray absorptiometry; CRP – C reactive protein

CRP was positive and significantly correlated with BMI *Z sc* (r=0.271; p<0.001), %fat mass (r=0.366; p<0.001) and waist circumference (r=0.198; p<0.001). A strong positive correlation was observed between CRP and fat mass, even for short duration of disease (< 2 years: r= 0.731; p< 0,001). No correlations were observed between CRP and lipid profile variables (total, HDL and LDL – cholesterol, apolipoproteins A1 and B and triglycerides), systolic and diastolic blood pressure and HOMA IR, independently of duration of disease.

Conclusions: Magnitude of obesity and adiposity as also intra-abdominal fat deposition are predictors of early expression of low grade inflammation. CRP seems not to be a sensitive/early marker of cardiometabolic comorbidity of pediatric obesity.