

IS ONE YEAR OF DIET AND PHYSICAL ACTIVITY PROGRAM FOR OBESE CHILDREN ENOUGH TO REVERT THE METABOLIC DISORDERS?

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Introduction

- Childhood obesity is a chronic disease associated with important comorbidities.
- Persistence of obesity and its metabolic alterations in adults significantly increase the risk of cardiovascular disease.

Objective

- To analyze clinical and laboratory characteristics of an obese pediatric population.
- To assess their response to a specific program consist of modification of their nutritional habits and physical activity .

Material and methods

- Patients with overweight/obesity defined by Orbegozo 2008 completed a one year group therapy with nutritional education and physical activity. We analyzed at the beginning and after a year, anthropometry, body composition by bioimpedance (Tanita 33 TB), insulin, glycaemia, lipids and adiponectin.
- Information regarding nutritional habits and physical activity was obtained with questionnaire.
- Anthropometric variables (body mass index, waist circumference) and blood pressure were measured with standard methods.
- Sexual maturity was evaluated by Tanner staging.
- Metabolic syndrome was diagnosed according to criteria of Diabetes International Federation .
- Adiponectin was analyzed by enzymoinmunoanalysis.
- SPSS.19 was used for statistical analysis.

Results

68 patients
(Females 54.4%)

Basal
Mean age: 10.26 years (2.89)
Prepuberals: 54.4%

After one year
Mean age: 11.5 years (2.90)
Prepuberals: 29.4%

	Basal	After one year	
BMI (kg/m ²)	27.56 (± 3.95)	27.65 (± 4.4)	ns
SD (BMI)	4.24 (± 1.5)	3.56 (± 1.7)	p <0.0001
Waist circumference (cm)	85.39 (± 10.19)	87.54 (± 11.8)	(p <0.015)
Lean mass (Kg)	36.03 (±11.37)	41.49 (±13.17)	(p<0.0001)
Fat mass (%)	37.38 (± 5.75)	35.58 (± 6.80)	(p<0.003)

	Basal	After one year	
Glycemia (mg/dl)	93.03 (6.94)	96.87 (9.47)	p<0.009
Insulin (mcU/ml)	18.13 (13.57)	16.76 (8.97)	ns
HOMA	4.42 (6.69)	4.09 (2.38)	ns
TG/C HDL	1.98 (2.40)	1.95 (1.65)	ns
Adiponectin (µg/mL)	9.51 (4.63)	8.27 (4.72)	P<0.001
Metabolic Syndrome	14.7% (60% male)	13.2% (66.6% male)	ns

- An improvement in the quality of Mediterranean diet and healthy habits was observed.

Questions	Basal	After one year
Snack between meals	63.7 %	44.6 %
Eat in secret	33.3%	21.4%
Eat large portions	42.2%	14.3%
Feel hungry after meal	33.3%	10.1%
Eat fast	67.6%	64.3%
KIDMED	7.44 (2.16)	7.91 (1.89)

- There was decrease in sedentary activities (hour/day): from 3.3(±2) to 2.7 (± 1.7) (p<0.001)
- Increase in physical activity 2.5 hours/week (p<0.001).

- Increase in basal glycemia, which is above 100 mg/dl in 30.9% of the children after a year of follow-up.
- None of the patients with MS presented hypertension or diabetes. 3 of them had glucose intolerance but with normal OGTT after a year

Conclusions

- The program is effective in achieving improvement of healthy habits and to reduce degree of obesity, although it has not accompanied by a decrease in abdominal adipose tissue.
- Basal glycemia was increase after intervention.
- One year of study has not been enough to revert completely MS.