PHYSICAL AND METABOLIC EVOLUTION OF OBESE CHILDREN AND ADOLESCENTS AFTER THE ATTAINMENT OF INTENSE WEIGHT REDUCTION

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The authors have nothing to disclose

Introduction:

- Despite the lack of drugs approved for the treatment of childhood obesity, conservative treatment can allow for a considerable weight reduction in a percentage of patients.
- However, the influence of the velocity of weight loss on metabolic changes and the evolution of BMI after the attainment of weight reduction in children remain insufficiently characterized.

Objectives:

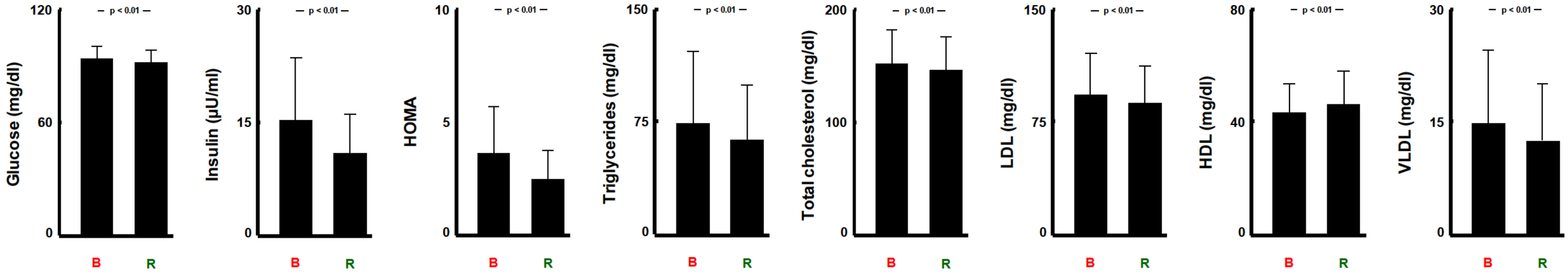
1) To evaluate anthropometric and metabolic changes in obese children after intense weight loss.
2) To analyze the influence of the amount of weight loss and the time spent to attain it on the observed changes.
3) To investigate BMI evolution during the first 3 years after weight reduction.

Patients and methods:

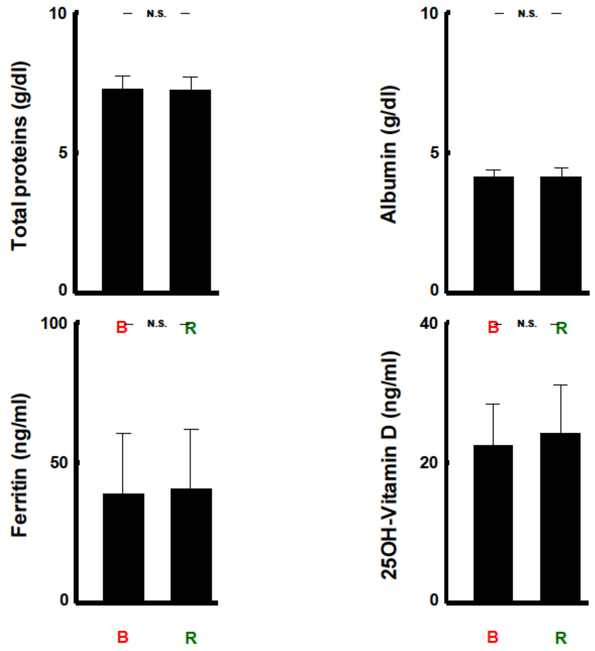
- Out of 1300 obese children/adolescents evaluated, a prospective study was conducted in 132 (11.28 2.83 years; 3.99 1.93 BMI-SDS; 62.1% males; 47.7% prepubertal) all of whom successfully reduced their BMI more than 1.5 SDS (52.1%) and/or their weight over 10% (47.9%).
- *Studied variables:* Glycemia, insulin, HOMA, HbA1c, uric acid, lipid profile, and serum levels of nutritional markers (25-OH-vitamin-D, total proteins, albumin, ferritin).
- Raw weight difference and time gap from baseline (B) to weight reduction (R) were recorded, as well as BMI-SDS at 6 months and yearly up to 3 years after R.

Results:

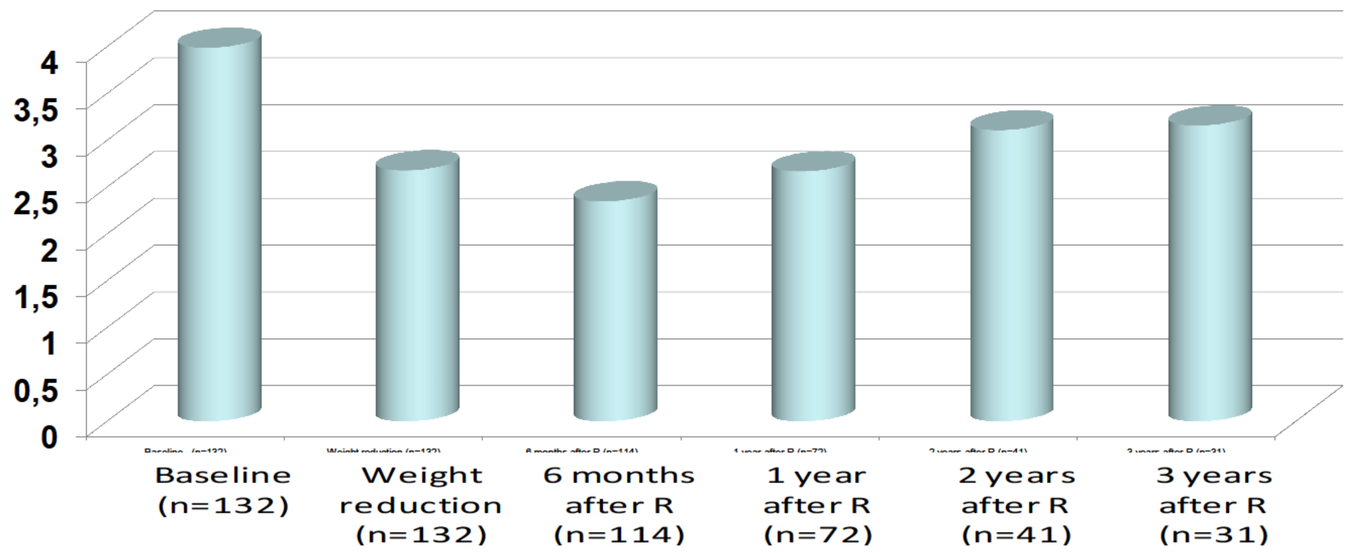
- Mean time spent to attain weight reduction was 0.79 0.60 years (35% patients achieved it in their first 6 months of follow-up and 80.2% in the first year after baseline visit).
- Weight reduction in the whole cohort resulted in an improvement of metabolic profile consisting in an increase in mean HDL and a decrease in the serum levels of the remaining studied parameters of the lipid profile (total cholesterol, LDL, VLDL and triglycerides). Weight loss also determined a significant a decrease in glycemia, insulinemia and HOMA (all $p < 0.01$) (Figures below).



- No significant correlations were found between the magnitude of the changes in the studied metabolic parameters studied and the amount of weight lost (difference in BMI-SDS from B to R), nor with the time spent to attain weight reduction (time from B to R).
- No impairment in the nutritional parameters studied was observed after the attainment of weight loss (Figures below).



- Mean BMI-SDS remained unchanged during the first year after R [at B: 3.99 1.93; at R: 2.69 1.21; 6-months after R: 2.35 1.29, (n=114); 1-year after R: 2.67 1.69, (n=72)]. A partial BMI regain was observed during the second year [3.11 1.74 BMI-SDS, (n=41)], followed by sustained BMI-SDS in the third year [3.16 2.51 BMI-SDS, (n=31)] (Figure below).



Conclusions:

1) Conservative treatment allows for considerable BMI reduction in around 10% obese children/adolescents, resulting in metabolic improvement without impairment of nutritional status, independently of the time spent to achieve weight loss.
2) Despite partial recovery, attained weight loss can be sustained up to 3 years after its achievement.

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