

KETOGENIC DIET IN PAEDIATRICS: WORK IN PROGRESS

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OBJECTIVES

The purpose of this study was to evaluate the feasibility, the efficacy and the safety of a controlled high-protein, low-carbohydrate, low-fat ketogenic diet in the treatment of moderately obese children.

RESULTS

The observed clinical reduction of body weight (mean values: from 65.1±9kg to 60.5±8kg), in the subjects included in the study, was primarily associated with a reduction of BMI (mean values: from 27.6±3 to 25.5±2) and a reduction of the abdominal circumference (mean values: from 93.6±8cm to 87.7±7cm).

9 children out of 10 (all except patient 7) entered into ketosis within the first 3 days, as adults.

2 children (patient 5 and 8) went on a light diet.

METHODS

10 overweight children, aged 10 to 15 years (avg. 12,3 years, 3 males, 7 females), healthy, with no chronic diseases, were recruited to follow a ketogenic diet (based on controlled high-protein foods). Anthropometric data (waist, neck, abdomen, hips, thighs, arm circumference, weight, height, BMI) were collected at the beginning (t₁), after 10 days of intensive diet (t₂), and 1 month after the end of reintroduction of normal foods (t₃), even if the study and the monitoring are ongoing.

Blood tests and a liver ecography were carried out at the beginning of the study in order to evaluate pancreatic, renal and hepatic functionality and any steatosis, if present.

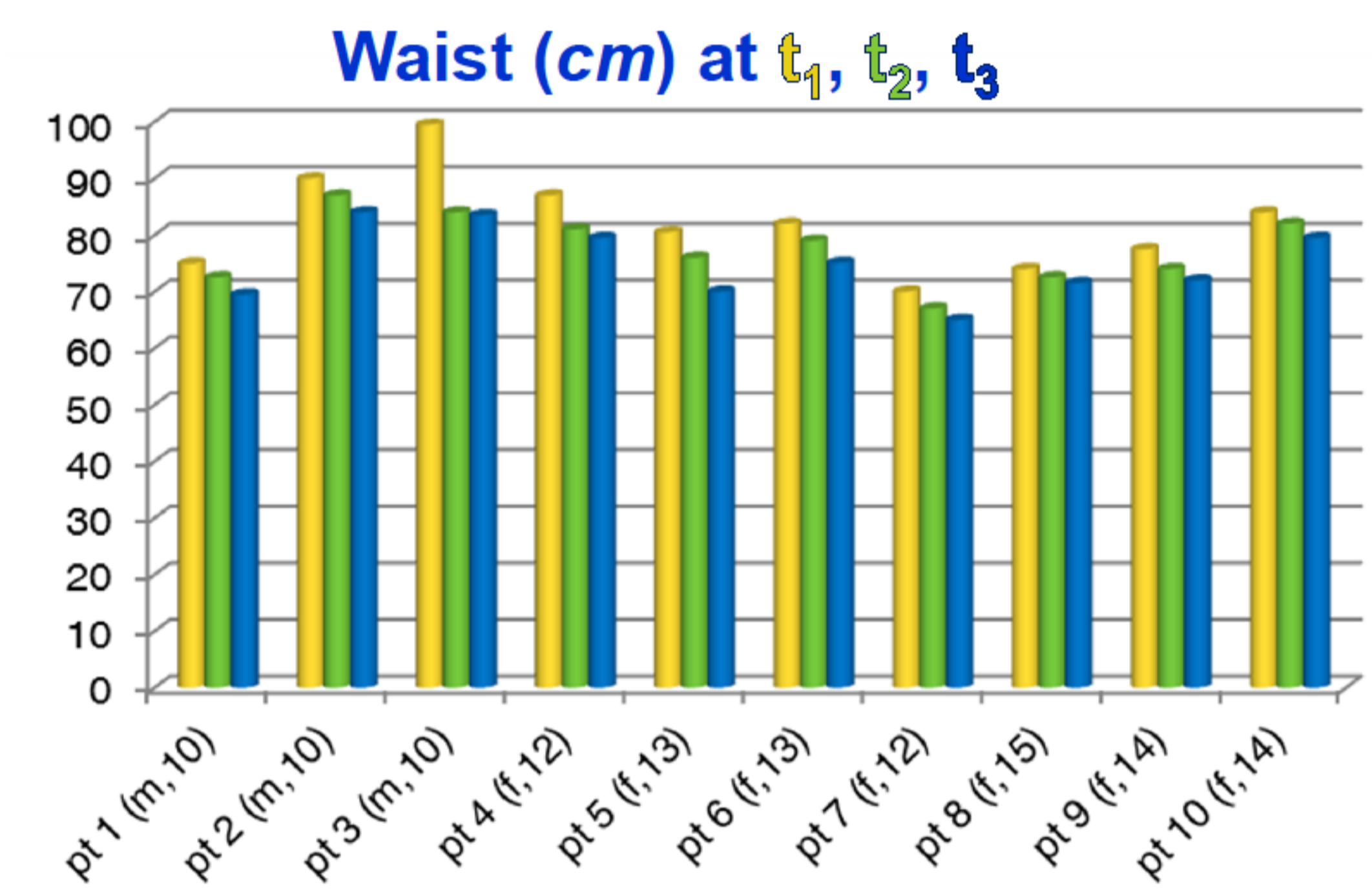
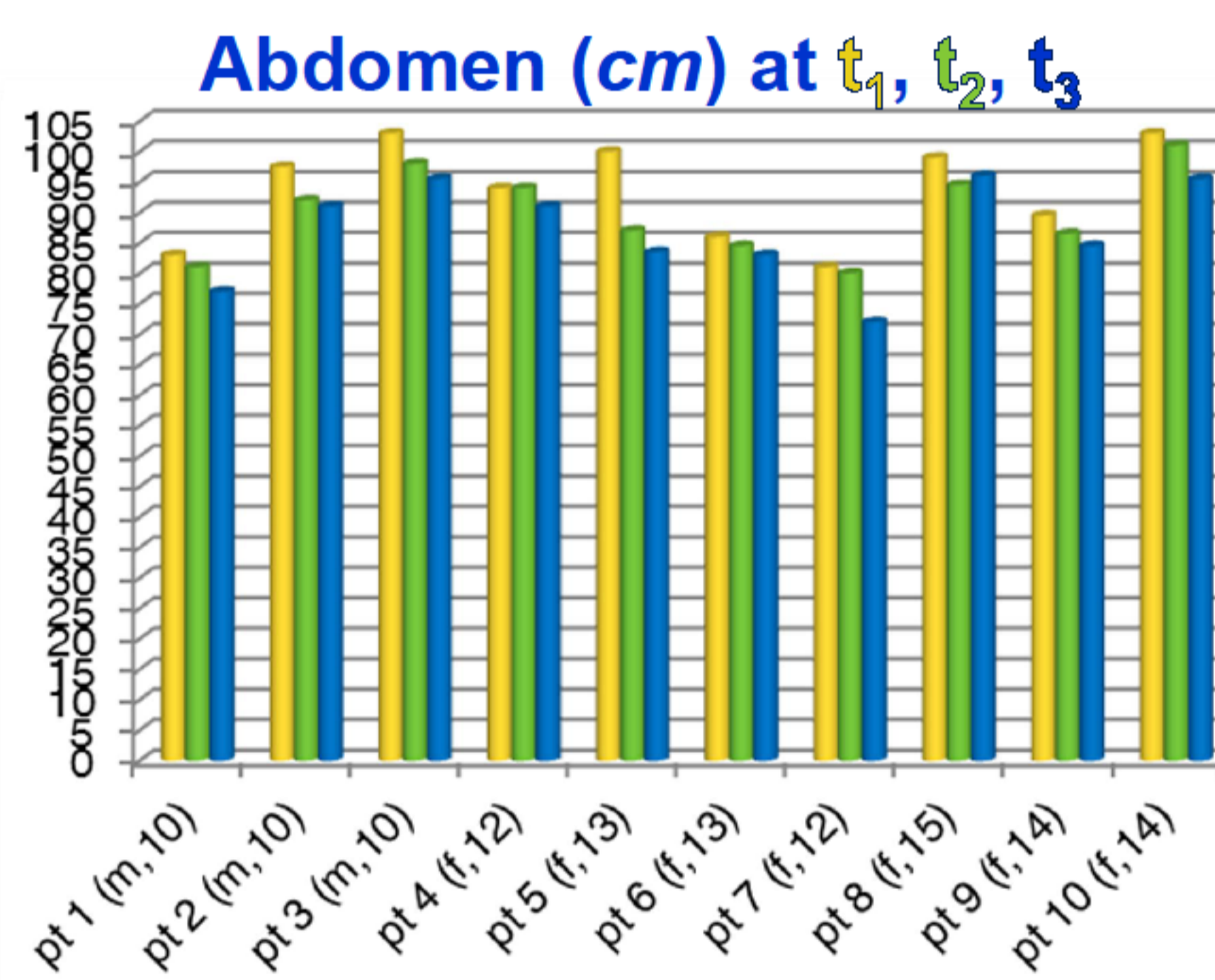
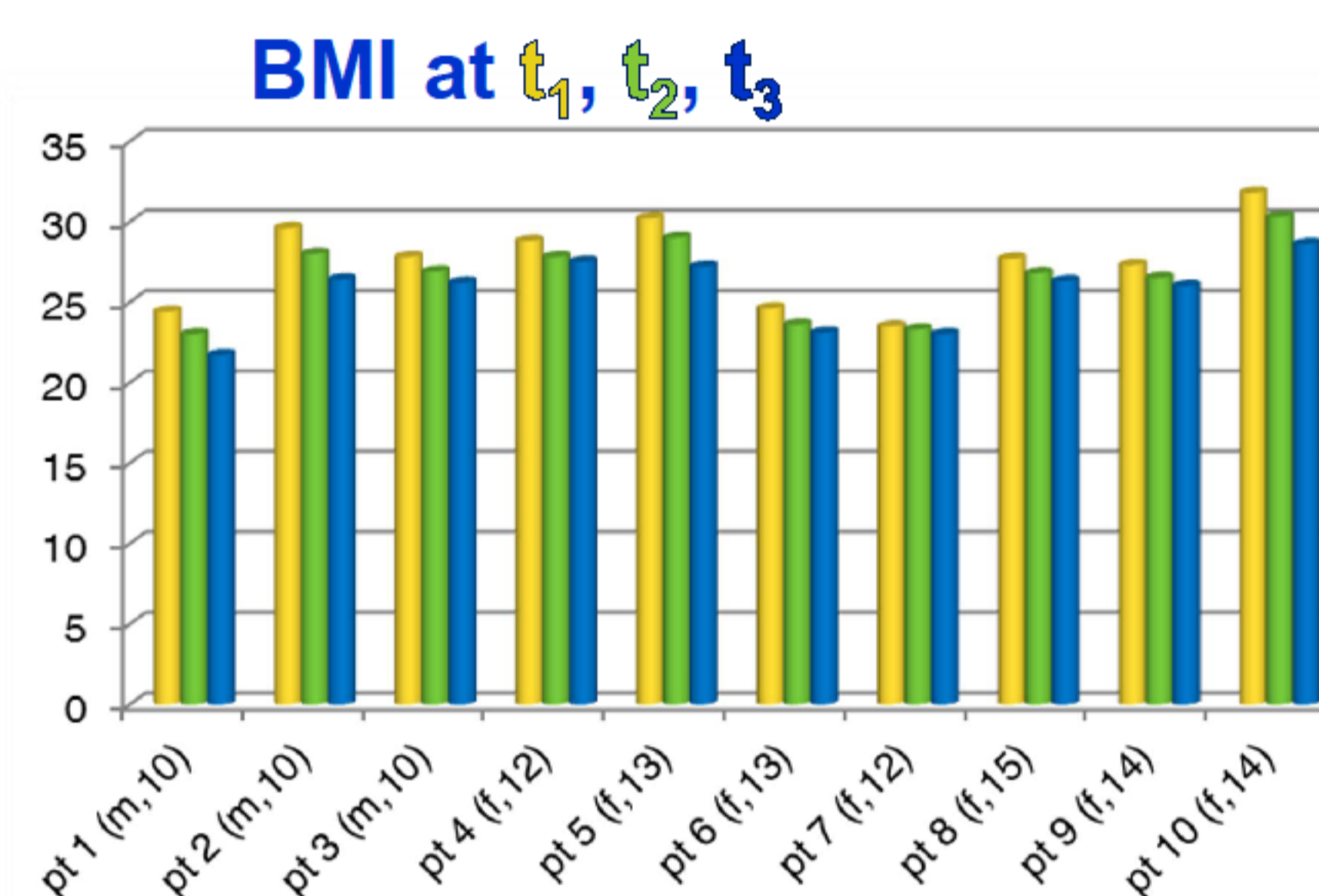
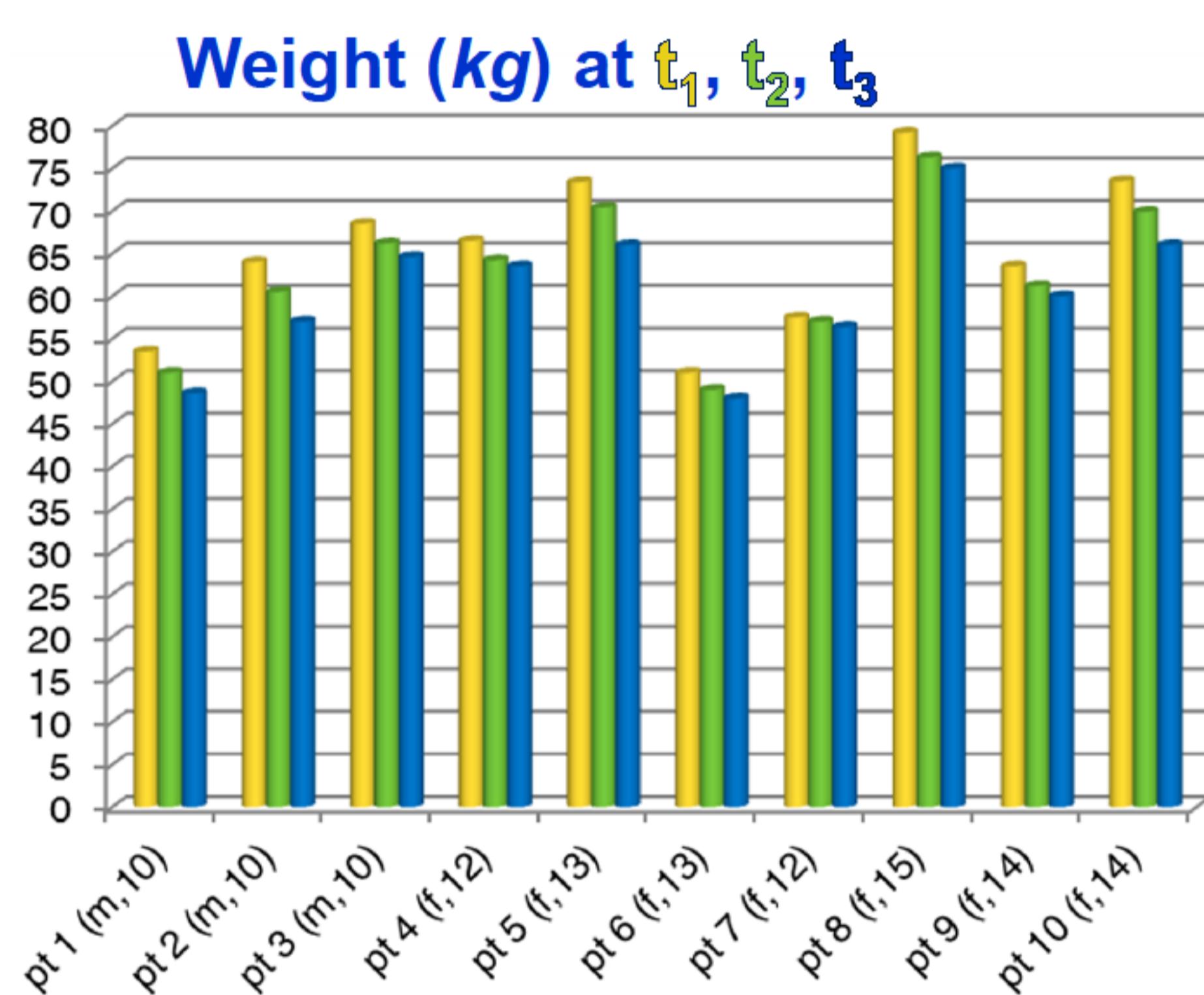
The dietetic protocol was combined with a nutritional supplement for alkalisation for 15 days both before and during the diet.

Ketosis was monitored daily with urinary sticks.

The diet protocol consisted of:

- 10 days of "intensive" diet (with controlled high-protein low-carbohydrate, low-fat foods);
- 10 days for reintroduction of normal food;
- 1 month of an optional light diet (carbohydrate/high-protein diet).

Monthly checks were carried out in continuation with anthropometric assessments. Improvement was evaluated in weight loss, reduction of centimeters in the various measurements especially abdominal and waist circumferences, decreased BMI, general mood and adherence to the prescribed diet.



pt = patient
m, f = male, female

CONCLUSIONS

A controlled high-protein, low-carbohydrate, low-fat ketogenic diet appears to be a good method of a rapid weight loss even in children, and may be a feasible alternative with no side effects, with a reduction of centimeters in different part of the body, which encourages the child to persevere with dietary restriction, partly due to sympathomimetic exciting and the "sculpture" effect for the reacquisition of an attractive physical form.

To be emphasize is the importance of personal commitment, both on the part of the patient and the physician, constant medical supervision especially in the post diet period (as in any diet) and family support.

There was a good response to the diet on the part of the children, they all complied easily. In the post-dietary phase, monitoring is ongoing.

Next step of the study could be the evaluation of the improvement of blood values, if initially altered and of steatosis, if initially present.

	Weight	Weight	Weight	Abdomen	Abdomen	Abdomen	BMI	BMI	BMI	Waist	Waist	Waist
	t ₁	t ₂	t ₃	t ₁	t ₂	t ₃	t ₁	t ₂	t ₃	t ₁	t ₂	t ₃
pt 1 (m,10)	53,5	51,0	48,6	83,0	81,0	77,0	24,4	23,0	21,7	75,0	72,5	69,5
pt 2 (m,10)	64,0	60,5	57,0	97,5	92,0	91,0	29,6	28,0	26,4	90,0	87,0	84,0
pt 3 (m,10)	68,5	66,2	64,6	103,0	98,0	95,5	27,8	26,9	26,2	99,5	84,0	83,5
pt 4 (f,12)	66,5	64,2	63,5	94,0	94,0	91,0	28,8	27,8	27,5	87,0	81,0	79,5
pt 5 (f,13)	73,4	70,4	66,0	100,0	87,0	83,5	30,2	29,0	27,2	80,5	76,0	70,0
pt 6 (f,13)	51,0	49,0	48,0	86,0	84,5	83,0	24,6	23,6	23,1	82,0	79,0	75,1
pt 7 (f,12)	57,5	57,0	56,4	81,0	80,0	72,0	23,5	23,3	23,0	70,0	67,0	65,0
pt 8 (f,15)	79,2	76,3	75,0	99,0	94,5	96,0	27,7	26,8	26,3	74,0	72,5	71,5
pt 9 (f,14)	63,5	61,2	60,0	89,5	86,5	84,5	27,3	26,5	26,0	77,5	74,0	72,0
pt 10 (f,14)	73,5	69,9	66,0	103,0	101,0	95,5	31,8	30,3	28,6	84,0	82,0	79,5

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