TRYPTOPHAN SUPPLEMENTATION AS CONJUNCTIVE THERAPY TO LIFE STYLE CHANGES IN OBESE ADOLESCENTS

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Introduction

A correlation between obesity and depression is well established. Tryptophan (Trp) is an essential amino acid that acts as substrate for serotonin and melatonin biosynthesis, both know to play role in satiety, anxiety, depression, and sleep quality and duration. Furthermore, low plasma Trp levels have been associated with obesity.

Objective

The main aim of this study was to investigate the effects of Trp supplementation as a conjunctive therapy to conventional dietary treatment on weight loss and psychological wellbeing in obese adolescents.

Research design and Methods

Double blind randomized clinical trial with parallel groups. Obese children ages 12 to 17 with BMI between 2 and 4 SDS were assigned to either :

-Tryptophan supplementation (3,5 mg/kg/day) as a conjunctive therapy to the conventional dietary treatment

- Placebo with conventional dietary treatment

Both groups received nutritional education, behavioral counseling and exercise recommendations of compare intensity thought out 6 month intervention (6 in-person visits). The study was conducted at Hospital Sant Joan de Déu between November, 2011 and July, 2014. The Institutional Review Board at Hospital Sant Joan de Déu approved the trial.

Results

Fig 1: Patient flow chart

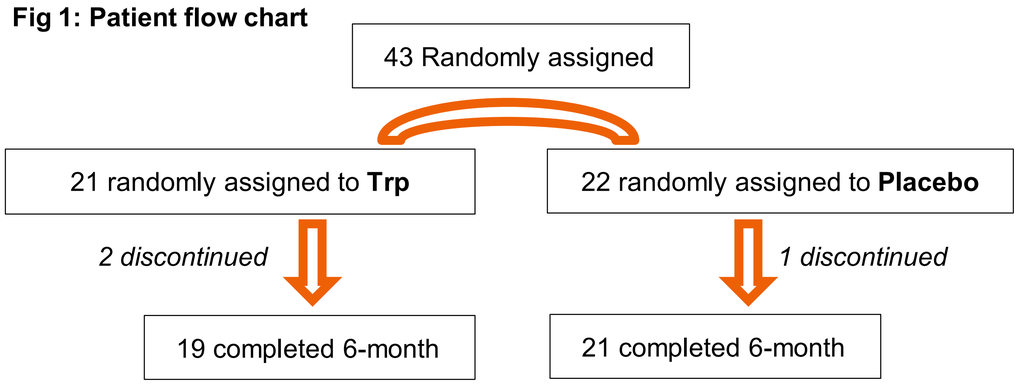

Table 1: Baseline characteristics of the subjects

Variable	Tryptophan Group (*n*= 13 F, 6M)	Placebo Group (*n*= 16 F, 5M)
Age (years)	13,7±0,3	13,5±0,3
Weight (Kg)	84,0±2,2	78,8±2,4
BMI (Kg/m2)	31,4±0,6	30,8±0,7
BMI z-score	2,69±0,08	2,59±0,09
Waist-to-hip ratio	0,95±0,015	0,95±0,016

Table 2: Change after intervention (anthropometric and analytic outcomes)

Variable	Change from baseline		Difference between groups
	Trp	Placebo	*P* value
Weight (Kg)	-3,60±0,98**	-1,34±0,98*	0,10
BMI	-1,69±0,34**	-0,80±0,35**	0,07
BMI z-score	-0,33±0,05**	-0,20±0,05**	0,07
Fasting glucose	-0,70±1,87	-4,23±1,90	0,07
Fasting insulin	-1,12±1,45	-1,16±1,61	0,29
LDL cholesterol	-4,07±2,10	-3,00±3,58	0,68
HDL cholesterol	-0,80±1,04	-1,61±1,31	0,63
Triglycerides	-1,05±8,13	4,67±8,31	0,62
Leukocytes	-0,71±0,36	0,05±0,31	0.12
TRP/LNNAS ratio	0,01±0,01	-0,00±0,01	0,087

Table 3: Change after intervention (psychological outcomes)

Variable	Change from baseline		Difference between groups
	Trp	Placebo	*P* value
IDER depression	-0,10±0,71	2,15±0,71	0,037*
CMAS-R anxiety	-0,63±0,29	0,35±0,33	0,035*
EuroQol-5D	-0,90±0,31	-0,80±0,28	0,81
EAT-40	-0,05±0,13	-0,15±0,18	0,66

[1]All values are expressed as mean±SEM
•p<0,05
*** p<0,01*

Conclusions

In our study Trp supplementation in obese adolescents in conjunction with dietary treatment improved some aspects of psychological wellbeing but did not showed an effect on caloric intake and the effect on body weight was not statistical significance. Given our results and the lack of successful treatments, further studies are needed.

There is no conflict of interest associated to this work.

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