Effect of Probiotics intake on obese children

Zhuan-Zhuan Ai, Rui-Min Chen*, Xin Yuan

Endocrinology Department, Fuzhou Children's Hospital of Fujian

Fujian Medical University Teaching Hospital, Fuzhou, Fujian 350005.

Backgroud and object

The experience of studies related on beneficial effects of probiotics on obesity is limited in the pediatric age group and the results are conflict. The primary objective was to determine the effect of Probiotics consumption on weight change. The secondary objective was to determine the effect of the treatment on levels of inflammatory. cytokines, serum lipid profile and glucose metabolism.

Methods

This randomized trial was conducted among obese children aged 6 to 14 years old. They were randomly allocated to receive probiotic capsule (containing Bifidobacterium longum, Lactobacillus bulgaricus and Streptococcus thermophilus) for 12 weeks. All of them treated with a reduced calorie intake and increased physical activity. The anthropometric, inflammatory cytokines, blood lipids and fasting blood glucose, insulin were measured at both baseline and at the end of the study.

Result

1) A total of 54 obese children participate in the study. 30 were randomized to the probiotic group (19 boys and 11 girls, mean age 9.88±1.79years, mean BMI 25.73±3.71 kg/m2) and 24 were randomized to the placebo control group(15 boys and 9 girls, mean age 9.60±2.07years, mean BMI 25.35±3.57 kg/m2).

2) Compared to control group, probiotic consumption significantly reduced Body Mass Index(BMI), inflammatory markers (interleukin-6, lipopolysaccharide binding protein, Tumor necrosis factor α) , triglyceride, fasting blood glucose, Insulin and homeostasis model assessment of insulin resistance (HOMA-IR) (P < 0.05).

Table 1. Comparison of indicators between the two groups after intervention

		Probiotic group		Placebo group	
		Before	After	Before	After
	BMI(kg/m^2)	25.72±0.69	23.39±0.67	25.35±0.71	21.4±0.58*
blood lipid	TC(mmol/l)	4.4±0.15	4.13±0.12	4.37±0.12	4.15±0.14
	TG(mmol/l)	1.23±0.09	0.7±0.23	1.17±0.10	0.90±0.07*
	HDL(mmol/l)	1.37±0.06	1.49±0.08	1.41±0.04	1.47±0.06
	LDL(mmol/l)	2.49±0.11	2.34±0.16	2.43±0.12	2.33±0.11
blood glucose	FPG(mmol/L)	25.72±0.69	23.39±0.67	25.35±0.71	21.4±0.58*
	INS(uIU/ml)	38.32±1.07	35.12±1.17	38.25±0.93	33.46±0.87*
	HOMA-IR	77.48±9.41	81.32±10.26	76.26±2.05	79.6±1.9*
inflammatory cytokine	IL-6(pg/ml)	2.36±0.18	1.019±0.11	2.08±0.19	1.32±0.11*
	TNFα(pg/ml)	48.64±3.83	28.04±1.65	55.33±3.33	39.66±4.86*
	LBP(ng/ml)	35317±1602	22930±1203	32964±2282	27251±1617*

Represent for difference between probiotic and placebo groups after intervention, P < 0.05

Conclusion

Receiving 12 weeks probiotic supplement can improve body mass index as well as components of the inflammatory and Glycolipid metabolism.

Reference

[1] Nirmalkar K.Nutrients, 2018, 10: undefined.

[2] Torres S.Eur J Nutr, 2019, 58: 27-43.