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LETTER TO THE EDITOR

Baseline differences may impact on relationship between dietary tryptophan and risk of obesity and type 2 diabetes

Xiao-Hua Ren, Ya-Wen Ye, Lian-Ping He

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Abstract

Recently, we read with great interest an article reporting a relationship between dietary tryptophan and the risk of obesity and type 2 diabetes (T2D). However, baseline characteristics differed among tertiles of cumulative dietary tryptophan intake in that study, which may be a confounding factor for the relationship between dietary tryptophan and the risk of obesity and T2D.

Key Words: Diabetes; Obesity; Dietary; Tryptophan; Type 2 diabetes

Core Tip: A recent study showed that dietary tryptophan was associated with the risk of obesity and type 2 diabetes (T2D). However, baseline characteristics differed among tertiles of cumulative dietary tryptophan intake in that study, which may impact on the relationship between dietary tryptophan and the risk of obesity and T2D.

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TO THE EDITOR

In recent years, the American Diabetes Association has started to strongly advocate the Mediterranean diet over other diets in patients with diabetes mellitus because of its beneficial effects on glycemic control and cardiovascular risk factors[1]. We read the

Table 1 Baseline characteristics of study variables by tertiles of cumulative tryptophan intake in CHNS, 1997-2011[2]

Baseline variable	T1 (*n* = 2633)	T2 (*n* = 2642)	T3 (*n* = 2633)	*P* value
Age (yr)	43.884 (14.624)	43.196 (14.787)	43.338 (15.187)	0.207
Female, *n* (%)	1296 (49.221)	1338 (50.643)	1330 (50.513)	0.521
BMI (kg/m^2)	22.818 (2.966)	22.344 (2.957)	21.668 (2.669)	< 0.001
WHR	0.852 (0.066)	0.847 (0.061)	0.845 (0.061)	< 0.001
PAL (MET-h/wk)	306.102 (185.951)	305.386 (183.797)	314.724 (178.567)	0.119
Energy intake (kcal/d)	2406.574 (730.597)	2279.742 (631.699)	2312.202 (619.281)	< 0.001
Protein intake (g/d)	75.854 (24.496)	68.007 (21.007)	63.132 (19.504)	< 0.001
Fat intake (g/d)	65.010 (37.716)	71.561 (36.944)	60.339 (32.443)	< 0.001
Carbohydrate intake (g/d)	376.755 (142.836)	337.802 (113.510)	375.947 (115.997)	< 0.001
SBP (mmHg)	120.945 (17.845)	118.362 (17.904)	116.824 (17.303)	< 0.001
DBP (mmHg)	78.296 (10.763)	77.051 (11.277)	75.871 (10.419)	< 0.001
Baseline tryptophan consumption (mg/g protein)	12.660 (0.972)	13.812 (1.018)	14.947 (1.216)	< 0.001
Living in city, *n* (%)	761 (28.902)	942 (35.655)	581 (22.066)	< 0.001
Urban index	51.952 (2.951)	52.032 (2.732)	51.797 (2.657)	0.008
Individual income (yuan)	6019.137 (6773.845)	6390.557 (5712.462)	5325.567 (5445.487)	< 0.001
High school education, *n* (%)	457 (17.357)	570 (21.575)	347 (13.179)	< 0.001
Smoking, *n* (%)	886 (33.650)	889 (33.649)	853 (32.397)	0.537
Drinking, *n* (%)	1008 (38.283)	995 (37.661)	903 (34.295)	0.005
Sleep time (h)	8.085 (1.135)	8.098 (1.179)	8.215 (1.161)	< 0.001
Prevalent diabetes, *n* (%)	32 (1.215)	38 (1.438)	49 (1.861)	0.148
Prevalent obesity, *n* (%)	162 (6.153)	114 (4.315)	69 (2.621)	< 0.001
Prevalent overweight, *n* (%)	540 (20.509)	472 (17.865)	274 (10.406)	< 0.001
Prevalent hypertension, *n* (%)	554 (21.041)	478 (18.092)	391 (14.850)	< 0.001

BMI: Body mass index; WHR: Waist-hip ratio; PAL: Peer-assisted learning; SBP: Systolic blood pressure; DBP: D binding protein.

article of Wang *et al*[2] with great interest. The results of their study showed that dietary tryptophan was associated with the risk of obesity and type 2 diabetes (T2D). These findings may provide valuable information to public health authorities for making novel dietary suggestions and preventing obesity and T2D more effectively. However, there are still issues worth discussing with the authors in this article.

The main problem of the study is that baseline characteristics were different among tertiles of cumulative dietary tryptophan intake. According to the baseline characteristics of the participants stratified by tertiles of cumulative dietary tryptophan intake (Table 1), body mass index (BMI), waist-hip ratio, systolic blood pressure, diastolic blood pressure, energy intake, high school education, prevalence of overweight, and prevalence of hypertension differed across the tertiles of cumulative dietary tryptophan intake. At baseline, people with obesity, overweight (BMI ≥ 24), and hypertension were more likely in the first tertile. Obesity is a well-known risk factor for T2D[3,4]. In this study, a negative correlation trend was found between BMI and tertiles of cumulative dietary tryptophan intake. Was increased diabetes risk a cause of obesity or insufficient tryptophan intake? Therefore, further research is needed to explore whether the increased risk of diabetes is due to obesity or insufficient tryptophan intake.

Overall, the differences in baseline characteristics among tertiles of cumulative dietary tryptophan intake may impact on the relationship between dietary tryptophan and the risk of obesity and T2D.

FOOTNOTES

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