**Name of Journal:** *World Journal of Clinical Cases*

**Manuscript NO:** 76441

**Manuscript Type:** LETTER TO THE EDITOR

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

Ren XH *et al*. Baseline differences

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

**Xiao-Hua Ren, Ya-Wen Ye, Lian-Ping He,** School of medicine, Taizhou university, Taizhou 318000, Zhejiang Province, China

**Author contributions:** Ren XH and He LP contributed to the conception of research; Ren XH and Ye YW wrote the manuscript; He LP contributed to the revision of the manuscript; and all authors approved the final manuscript for submission.

**Supported by** curriculum reform project of Taizhou University in 2021, No. xkg2021087.

**Corresponding author: Lian-Ping He, PhD, Academic Fellow, Director, Teacher,** School of medicine, Taizhou university, No. 1139 Shifu Avenue, Jiaojiang District, Taizhou 318000, Zhejiang Province, China. lianpinghe@tzc.edu.cn

**Received:** March 17, 2022

**Revised:** April 26, 2022

**Accepted:** **June 14, 2022**

**Published online:**

**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

Ren XH, Ye YW, He LP. Baseline differences may impact on relationship between dietary tryptophan and risk of obesity and type 2 diabetes. *World J Clin Cases* 2022; In press

**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.

**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 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.

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**Footnotes**

**Conflict-of-interest statement:** The authors declared no potential conflicts of interest with respect to the research authorship, and publication of this article.

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**Provenance and peer review:** Invited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Peer-review started:** March 17, 2022

**First decision:** April 25, 2022

**Article in press:**

**Specialty type:** Endocrinology and metabolism

**Country/Territory of origin:** China

**Peer-review report’s scientific quality classification**

Grade A (Excellent): 0

Grade B (Very good): 0

Grade C (Good): C, C

Grade D (Fair): 0

Grade E (Poor): 0

**P-Reviewer:** Bhattacharya S, India; Gica N, Romania**A-Editor:** Saha S, Australia**S-Editor:** Ma YJ **L-Editor:** Wang TQ **P-Editor:** Ma YJ

**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/m2) | 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) | 2,406.574 (730.597) | 2,279.742 (631.699) | 2,312.202 (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.