



OPEN ACCESS

EDITED AND REVIEWED BY
Maurizio Muscaritoli,
Sapienza University of Rome, Italy

*CORRESPONDENCE
Audesh Bhat
✉ abhat@cujammu.ac.in

RECEIVED 10 April 2024
ACCEPTED 22 April 2024
PUBLISHED 03 May 2024

CITATION
Bhat A (2024) Editorial: Nutritional guidelines
for diabetic patients. *Front. Nutr.* 11:1415419.
doi: 10.3389/fnut.2024.1415419

COPYRIGHT
© 2024 Bhat. This is an open-access article
distributed under the terms of the [Creative
Commons Attribution License \(CC BY\)](#). The
use, distribution or reproduction in other
forums is permitted, provided the original
author(s) and the copyright owner(s) are
credited and that the original publication in
this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

Editorial: Nutritional guidelines for diabetic patients

Audesh Bhat*

Center for Molecular Biology, Central University of Jammu, Samba, Jammu and Kashmir, India

KEYWORDS

diabetes, nutritional guidelines, nutrient deficiencies, micronutrients, diabetes complication

Editorial on the Research Topic

Nutritional guidelines for diabetic patients

Patients with diabetes not only suffer from high blood glucose levels and its associated complications, but also from nutritional deficiencies, especially of micronutrients due to dietary restrictions and excessive loss of body fluids (1, 2). Imbalanced protein levels are also of concern, as normal protein levels are equally necessary for better management of diabetes and its associated complications. On the other hand, excessive nutrition and its associated health conditions, such as overweight and obesity are known causative factors of diabetes. Thus, a proper nutritional guideline for diabetic patients is not only necessary for the management of diabetes but also to ensure that the patients build and improve their health. This Research Topic entitled “*Nutritional guidelines for diabetic patients*” was launched with the aim at providing a single platform to the leading scientists, clinicians and behavior scientists engaged in the field of diabetes and nutrition to share their findings and opinions on the subject. This editorial summarizes the contribution to this Research Topic. A total of six articles; one original research, one clinical trial, one study protocol, one systematic review, and one prospective were selected for publication among the numerous submissions received. A brief summary of each contribution is highlighted below.

In the first accepted article, [Isaksson et al.](#) presents a study protocol for a randomized cross-over study. Using this protocol, the authors aimed at evaluating the effects of moderate carbohydrate intake (30% of total energy from carbohydrates) on glucose levels in type 1 diabetic patients with inadequate glucose control, as against the 50% of total energy from carbohydrates traditional diet. The study outcomes were published independently in 2023 (3), showing a significant decrease in the mean glucose levels in the moderate carbohydrate group when compared with the traditional diet group ($p < 0.001$) with no incidence of hypoglycemia or ketosis.

[Volek et al.](#) presents a prospective in the second article of the Research Topic on nutrition security, highlighting the importance of having access to food that promotes overall wellbeing, including management of diabetes. The authors have argued in support of a low-carbohydrate diet based on the available evidence and inclusion of such guidelines in the Dietary Guidelines for Americans. As per the available evidence, adhering to such dietary pattern improves blood glucose and insulin control, maintains good lipid profile body weight, and lowers blood pressure and inflammatory markers.

Healthy and balanced eating along with a routine physical activity are considered as vital factors in the management of diabetes and its associated complication, including cardiovascular diseases (CVDs) (4). [Zeinalabedini et al.](#) in their cross-sectional study on 460 type 2 diabetic (T2D) patients following healthy eating index-2015 (HEI-2015) (5)

reported a 50% reduction in the body roundness index (BRI) and atherogenic index of plasma (AIP) risk. This reduction was also accompanied by a reduced Castelli risk index-1 and 2, albeit with a marginal significance. This cross-sectional study further highlights the significance of adhering to a healthy diet regimen to reduce the risk of T2D and its complications.

Several decades of research have led to the identification of various plant based secondary metabolites with a potential to treat diabetes (6, 7). To assess the impact of rutin (3,3',4',5,7-pentahydroxyflavone-3-rhamnoglucoside), a natural flavonoid glycoside on blood pressure, antioxidant levels and several other parameters in T2D patients, Bazyar et al. conducted a clinical trial on 50 patients; 25 received rutin and 25 placebo. The authors observed a significant improvement in blood pressure and antioxidant levels in T2D patients after 3 months of 1g/day (500mg rutin+ 500 mg other ingredients) consumption. This data further adds to the plethora of data, highlighting the significance of plant based secondary metabolites in the treatment of T2D and associated complications.

The 5th article authored by Sun et al. represents a systematic review of clinical trials on the use of soy protein to mitigate diabetic nephropathy. Data from a total of 6 shortlisted randomized clinical trial was analyzed and revealed a statistically significant improvement in the kidney function parameters, such as serum creatinine, glomerular filtration rate, blood urea nitrogen, and total urine protein in both 35% and 100% soy protein categories when compared with the 0% soy protein group. The significance of certain nutrition(s) in mitigating the side effects of hyperglycemia, including nephropathy is further strengthened by this review, which clearly shows a beneficial effect of including soy protein in the diet of diabetic patients.

In the final article, Prinz presents a mini review on sweetness preference and its impact on energy impact and body weight. This interesting review summarizes the available literature on modulation of sweetness preference as a means to control body weight and obesity. The author concluded that the hypothesis lacks a strong evidence based on scientific data and highlights the need for more comprehensive research to establish any link between sweetness modulation and body weight control.

References

1. Yahaya TO, Yusuf AB, Danjuma JK, Usman BM, Ishiaku YM. Mechanistic links between vitamin deficiencies and diabetes mellitus: a review. *Egyptian J Basic Appl Sci.* (2021) 8:189–202. doi: 10.1080/2314808X.2021.1945395
2. Dubey P, Thakur V, Chattopadhyay M. Role of minerals and trace elements in diabetes and insulin resistance. *Nutrients.* (2020) 12:864. doi: 10.3390/nu12061864
3. Sterner Isaksson S, Olafsdottir AF, Ivarsson S, Imberg H, Toft E, Hallstrom S, et al. The effect of carbohydrate intake on glycaemic control in individuals with type 1 diabetes: a randomised, open-label, crossover trial. *Lancet Reg Health Eur.* (2024) 37:100799. doi: 10.1016/j.lanep.2023.100799
4. Reynolds A, Mann J. Update on nutrition in diabetes management. *Med Clin North Am.* (2022) 106:865–79. doi: 10.1016/j.mcna.2022.03.003
5. Krebs-Smith SM, Pannucci TE, Subar AF, Kirkpatrick SI, Lerman JL, Tooze JA, et al. Update of the healthy eating index: HEI-2015. *J Acad Nutr Diet.* (2018) 118:1591–602. doi: 10.1016/j.jand.2018.05.021
6. Ota A, Ulrich NP. An overview of herbal products and secondary metabolites used for management of type two diabetes. *Front Pharmacol.* (2017) 8:436. doi: 10.3389/fphar.2017.00436
7. Chauhan DS, Gupta P, Potttoo FH, Amir M. Secondary metabolites in the treatment of diabetes mellitus: a paradigm shift. *Curr Drug Metab.* (2020) 21:493–511. doi: 10.2174/1389200221666200514081947

Author contributions

AB: Conceptualization, Writing – original draft, Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. AB is the recipient of Indian Council of Medical Research (ICMR) research grants, RBMH/CAR/3/2018-19 and BMS/Adhoc/45/2021-22.

Acknowledgments

I thank all the authors who submitted their valuable work to this Research Topic irrespective of whether their work was accepted or rejected. My sincere thanks to the topic editors and the reviewers for their valuable contribution. I also acknowledge the support received from the Journal's editorial office.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.