Proceedings of the Nutrition Society (2024), **83 (OCE1)**, E70 doi:10.1017/S0029665124000880

47th Annual Scientific Meeting of the Nutrition Society of Australia and Nutrition Society of New Zealand, 28 November – 1 December 2023, Nutrition & Wellbeing in Oceania

The relationship between the low food chemical diet and symptoms in irritable bowel syndrome: a cross-sectional survey

K. Lynam[1], G. Trakman[1], J. Biesiekierski[1,2], Z. Cooke[1], J. Barrett[3] and C. Tuck[1,4]
[1]*Department of Dietetics, Nutrition and Sport, La Trobe University, Australia*
[2]*Department of Nutrition, Dietetics and Food, Monash University, Notting Hill, Australia*
[3]*Diet Solutions, Glen Iris, Australia*
[4]*Department of Nursing and Allied Health, Swinburne University, Hawthorn, Australia*

Dietary therapies have revolutionised treatment for irritable bowel syndrome (IBS). However, response rates to the diet with the highest evidence of efficacy (the low FODMAP diet) remain at 50-75%, suggesting other potential drivers of symptom onset. A low food chemical elimination-rechallenge diet targeting bioactive food chemicals (including salicylates, amines, glutamate and other additives), is commonly applied in Australia in patients exhibiting both gastrointestinal and extra-intestinal symptoms. One key food chemical, salicylate, has been shown to elicit symptoms in IBS patients with aspirin-sensitivity[(1)], and 77% of IBS patients have reported amine-rich foods trigger symptoms[(2)]. However, data supporting the full low chemical diet is scant, and safety concerns exist due to its restrictive nature potentially causing nutritional deficiencies and disordered eating. This cross-sectional survey aimed to evaluate the frequency of co-existing extra-intestinal symptoms, as well as explore patient perceptions and use of the low chemical diet in those with IBS and healthy controls. Participants with IBS (IBS-Severity Scoring System (IBS-SSS) >75), and healthy controls (not meeting Rome IV and IBS-SSS ≤75) were recruited via online advertisement. Validated questionnaires were used to assess gastrointestinal symptoms (IBS-SSS), extraintestinal symptoms (extended PHQ-12), nutrient (Comprehensive Nutritional Assessment Tool) and food additive intake (IBD-Food additive questionnaire). Additional questionnaires assessed use of dietary therapies with specific focus on food chemicals. Data was analysed using independent samples t-test and chi-square test. 204 IBS (Total IBS-SSS, 277 ± 79) and 22 healthy controls (36 ± 28, $p<0.01$) completed the study. IBS participants were more likely to report extra-intestinal symptoms including headaches ($p<0.01$), migraines ($p=0.03$), fatigue ($p<0.01$), difficulty sleeping ($p=0.03$), rhinitis ($p=0.02$), urticaria ($p=0.04$) and mood disturbance ($p<0.01$). IBS participants were more likely to report at least one food chemical as a trigger for gastrointestinal (38% vs 13%, $p=0.03$) and/or extra-intestinal (30% vs 9%, $p=0.04$) symptoms. In the IBS group, the most common suspected dietary triggers for gastrointestinal symptoms were salicylates (19%) followed by MSG (17%) and artificial colours (14%); while for extra-intestinal symptoms, MSG (15%) was most common, followed by amines (14%), and sulphites (12%). There was no significant difference in consumption of ultra-processed, additive containing foods. Twenty-one (10%) IBS participants were following a low chemical diet, with dietary advice provided by a dietitian (n = 13), general practitioner (n = 6), gastroenterologist (n = 6), naturopath (n = 3), family/friend (n = 4) and/or the diet was self-initiated (n = 7). Fourteen of the 21 (67%) reported following both a low food chemical and low FODMAP diet. Patients with IBS are more likely to report extra-intestinal symptoms compared to healthy controls. Despite limited evidence, a low food chemical diet is utilised to manage both gastrointestinal and extra-intestinal symptoms. Of concern, many respondents following a low food chemical diet reported also following a low FODMAP diet, which may have implications for nutritional adequacy.

Keywords: dietary therapy; disorders of gut-brain interaction; extra-intestinal symptoms; bioactive food chemicals

Ethics Declaration

Yes

Financial Support

This research received no external funding.

References

1. Tuck C, Malakar S, Barrett J *et al.* (2021) *JGH Open* **5**, 871–878.
2. Larussa T, Abenavoli L, Corea A *et al.* (2021) *Eur Rev Med Pharmacol Sci* **25**(10).