

Managing irritable bowel syndrome

Dietary approaches and food intolerance

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i sal 2119, Arvid Wallgrens backe, Hus 2, 413 46 Göteborg, fredagen den 4:e juni 2021, klockan 09.00.

av **Sanna Nybacka**

Fakultetsopponent:

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Avhandlingen baseras på följande delarbeten

- I. Nybacka S, Störsrud S, Liljebo T, Le Nevé B, Törnblom H, Simrén M, Winkvist A. Within- and between-subject variation in dietary intake of fermentable oligo-, di-, monosaccharides, and polyols among patients with irritable bowel syndrome. *Curr Dev Nutr.* 2018;3(2):nzy101.
- II. Nybacka S, Störsrud S, Lindqvist H, Törnblom H, Simrén M, Winkvist A. Habitual FODMAP intake in relation to symptom severity and pattern in patients with irritable bowel syndrome. *Nutrients.* 2020;13(1):27.
- III. Nybacka S, Simrén M, Störsrud S, Törnblom H, Winkvist A, Lindqvist H. Changes in serum and urinary metabolomic profile after a dietary intervention in patients with irritable bowel syndrome. *Submitted.*
- IV. Nybacka S, Öhman L, Störsrud S, Mybeck M, Böhn L, Wilpart K, Winkvist A, Bengtsson U, Törnblom H, Simrén M. Neither self-reported atopy nor IgE-mediated allergy are linked to gastrointestinal symptoms in patients with irritable bowel syndrome. *Neurogastroenterol Motil.* 2018;30(10):e13379.

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Avdelningen för invärtesmedicin och klinisk nutrition, Institutionen för medicin, Sahlgrenska akademien, Göteborgs universitet, Sverige, 2021.

Abstract

Irritable bowel syndrome (IBS) is a complex disorder where diet plays a pivotal role in symptom generation for many patients. The aim of this thesis was to explore how diet and self-perceived food intolerance relate to gastrointestinal (GI) symptoms among patients with IBS, and within different manifestations of IBS.

In Paper I, reported dietary intake of fermentable oligo-, di-, monosaccharides and polyols (FODMAPs) were characterized among patients with IBS. Intakes varied more between subjects than within, leading to an acceptable precision in diet estimates when data rankings are used. In Paper II cross-sectional data were used to explore how FODMAP intake relates to GI symptoms in IBS patients with different subtypes. Although reported FODMAP intake appeared to be similar between IBS subtypes, only in unsubtyped IBS a strong relationship between excess fructose intake and GI symptom severity was found. NMR metabolomics from serum and urine derived from a randomized controlled dietary trial among patients with IBS in Paper III, did not reveal any consistent pattern in principal component analysis (PCA) regarding reported baseline dietary intake. When evaluating the changes in metabolite concentrations, several metabolites seemed to distinguish responders and non-responders to the dietary modifications. In Paper IV, it was shown that atopic disease is a common IBS comorbidity, but presence of self-reported food intolerance/allergy or atopic disease did not relate to IBS symptom severity. In this analysis, female gender, other somatic symptoms and the number of food items reported to cause GI symptoms were associated with increased IBS symptom severity.

In conclusion, both habitual intake of FODMAPs and how one reacts to FODMAP intake seem to vary in this heterogenous patient group. Studies evaluating separate FODMAP components and individual tolerance to these are further warranted.

Keywords: Irritable bowel syndrome, diet, FODMAP, food intolerance