

SAFETY AND EFFICACY OF INCREASED INTAKE OF DIETARY FIBRE AND PROBIOTICS ON GASTROINTESTINAL SYMPTOMS IN HAEMODIALYSIS PATIENTS

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Objective

There is a potential of increased dietary fibre and probiotic intake to reduce the prevalence of constipation and other gastrointestinal (GI) symptoms.

The aim of this study was to investigate the safety and efficacy of increased dietary fibre and probiotic intake in dialysis patients.

Background

Many patients with end-stage renal disease who undergo haemodialysis (HD) experience gastrointestinal symptoms.

Most prevalent symptoms reported are:

- constipation,
- indigestion,
- abdominal pain,
- Reflux (1).

Constipation is the most frequently discussed symptom, with prevalence ranging up to 71,7 % (2).

Medications like phosphate binders or antibiotics, water reduction, and dietary restriction due to potassium management may exacerbate constipation and other GI symptoms (3). Considering that intestinal transit time is increased in advanced kidney failure, an increase in dietary fiber should benefit patients on HD.

This pilot test of dietary fibre and probiotics tolerability and safety was undertaken as part of a study on MCO membranes and diet modification to alleviate residual uremic syndrome in HD patients.

Methods and Materials

A total of 21 subjects participated in the study:

- 11 HD patients (66.9±11.1 years)
- 10 healthy controls (56.7±5.7 years)

Participants were asked to take 10 g of dietary supplement containing fibre and probiotics daily for 7 consecutive days (2×5g of dietary supplement containing 3,7g of fibre (*Plantago ovata Forsk* and inulin) and 2×10⁹ CFU of various probiotic bacteria species.

At baseline and study end participants answered a questionnaire regarding the frequency of their bowel movements, GI symptoms, and stool consistency.

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid

Stool consistency was rated by the Bristol Stool Chart (4). Type 1-2 indicate constipation, 3-4 are rated as ideal and 5-7 may indicate diarrhea.

Results

The frequency of bowel movements did not change for the HD patients or the control group after the intervention (median=1 bowel movement/day for both groups before and after the intervention).

- Weak tendency towards an increased frequency of bowel movements was observed in the HD patients (mean value±SD; baseline=0.9/day±0.44; study end=1.0/day±0.5 (p=0.18)),
- and in the control group (baseline=1.0/day±0.39; study end=1.2/day±0.57 (p = 0.29)).

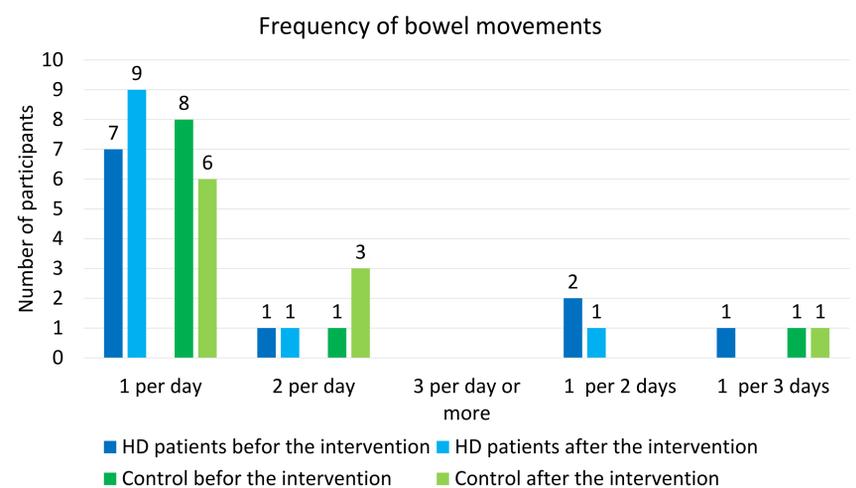


Chart 1. Frequency of bowel movements before and after the intervention in HD patients and control group

After the intervention fewer GI symptoms in HD patient group were observed (5 (45 %) of patients reported reduced GI symptoms, 2 (18 %) of patients reported slightly increased symptoms, others reported no change) with the difference borderline statistically significant (p=0.06, McNemar's test).

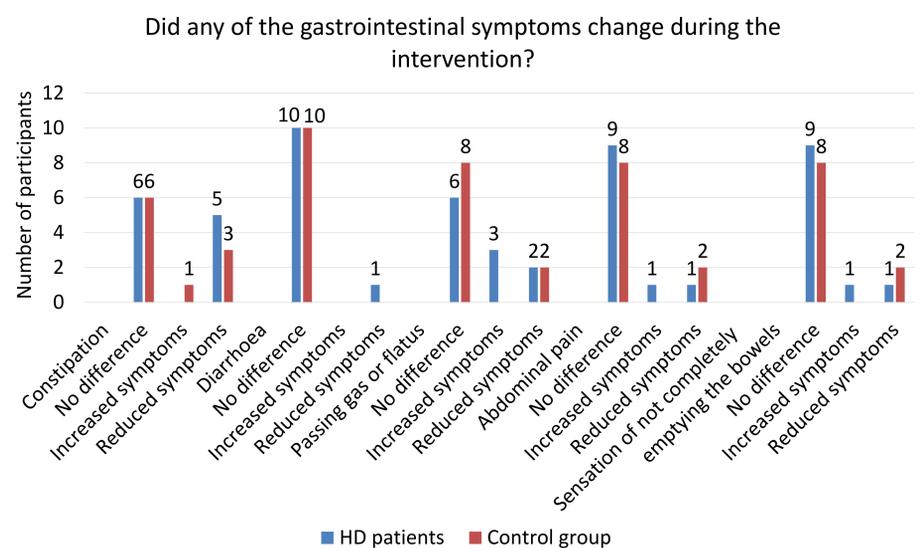


Chart 2. Occurrence of gastrointestinal symptoms during the intervention

The stool consistency did not change after the intervention in HD patients nor in the control group.

Conclusions

Increased intake of dietary fibre and probiotics was well tolerated and safe. We observed a potential benefit of this intervention on reduced incidence of various GI symptoms.

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