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A Clinical Trial to Study the Effect of Sprouted Ragi Malt in the Management of Chronic Constipation

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Abstract: ***Objective: To evaluate the efficacy of sprouted ragi malt as a dietary intervention for managing chronic constipation compared to traditional laxatives. Methods: A prospective randomised trial was conducted involving 274 participants (103 males and 171 females) who met the Rome II criteria for functional constipation. Participants were administered 30g of ragi malt daily in the form of porridge for 15 days. Outcomes were measured using the Bristol Stool Scale and symptomatic improvement. Results: Significant improvements were observed post-intervention. Pre-intervention, 39.05% of females and 19.34% of males reported high symptomatic scores (score of 4); after 15 days, 20.80% of males and 39.41% of females achieved a score of 0, indicating complete resolution of symptoms. Conclusion: Sprouted ragi malt is a low-cost, effective dietary alternative to pharmacological laxatives for managing chronic constipation. Key words: sprouted ragi malt, chronic constipation, diet therapy, bowel movement improvement, functional constipation.***

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1. Introduction

Constipation is not a well-defined disease, but a general term describing the difficulties a person experiences with their bowel movements (1). Functional gastrointestinal diseases including chronic constipation are most common illness seen by gastroenterologists. Chronic constipation is symptom based disorder and physicians have been defining constipation objectively using defecation frequency ranging from 3 to 21 bowel movements per week. The most recent definition of functional or chronic constipation is by Rome III criteria which defines constipation as fewer than three bowel movements per week (2). Prevalence of functional constipation is high in India. In a study from Chandigarh, North India 16.8% adults with mean age of 38.64 ± 15.57 years were reported to be suffering from functional constipation (3). In rural Bangalore, 8.69% elderly were reported to be suffering from functional constipation (4). Prevalence of constipation was as high as 36% in elderly from Pune city, Western India (5). Constipation is associated with impaired health-related quality of life [6-9], physical aggression [10], and psychological distress [9]. Chronic constipation can lead to faecal impaction [11-13], and in severe cases, faecal impaction can cause stercolar ulcerations, intestinal obstruction, or bowel perforation [14]. Other complications of constipation are related to excessive straining that can contribute to haemorrhoids, anal fissures and rectal prolapse. Excessive straining can affect the cerebral and coronary circulation with resultant syncope or cardiac ischemia [15]. Laxatives are the cornerstone in the treatment of constipation. Between 50 and 74% of nursing home patients are reported to use laxatives regularly [16,17]. These interventions are not without risk since frequent usage of laxatives may be accompanied by several side effects [18], including psychological ones, which also severely affect the seniors' quality of life [19]. Laxatives intervene in the stool transit by preventing the colon from resorbing water irrespective of the physiological interactions between the gut epithelium cells and the gut bacteria. In contrast, dietary fibers increase stool weight through fibers which are not fermented and through bacteria mass [20].

2. Methodology

Study Design: A prospective randomised trial conducted at KH & MRC, Karad.

Participants: Included patients over 12 years old meeting two or more Rome II criteria (e.g., straining, lumpy/hard stools, and sensation of incomplete evacuation). Individuals with known GI abnormalities or obstructions were excluded.

Intervention: Subjects consumed 30g of sprouted ragi malt porridge twice daily for 15 days. Compliance was monitored through follow-ups on days 5 and 10.

Outcome Measures: The primary outcome was the improvement in the Bristol Stool Scale score.

3. Results

The study analysed data from 274 patients. Demographic analysis showed that 57.20% of males led a sedentary lifestyle, while the majority of females (39.78%) had a BMI within the 18.5-24.9 range.

Clinical Outcomes:

Baseline Status: Before the intervention, the most frequent score among both genders was 4 (19.34% of males and 39.05% of females). No participants had a score of 0, 1, or 2 at the start.

Post-Intervention Improvement: Following the 15-day regimen, 57 males (20.80%) and 108 females (39.41%) achieved a score of 0, representing a total absence of clinical constipation symptoms.

Stool Consistency: Significant shifts were noted from lumpy/hard stools to normal scores (0-2), with only a negligible percentage of participants remaining at high-intensity scores.

4. Discussion

Ragi is a low- cost staple food in india. Nutritionally its importance is well recognised because of its high content of calcium (0.38%) and dietary ®bre (18%) compared to the continental cereals such as barley, rice, maize and wheat (Kamat & Belavady, 1980; Ravindran, 1991). It is consumed as a whole, thereby retaining the ®bre, phenolics, minerals and vitamins present in the outer layer of the grain, which are nutritionally bene®cial (Usha, Sripriya & Chandra, 1986). Traditionally ragi is processed either by malting or by fermentation and the resultant ¯our or extracts derived from it are extensively used in the preparation of weaning foods, beverages and other pharmaceutical preparations. Finger millet is having high proportion of dietary fiber than many other cereals. Health benefits associated with finger millet are delayed nutrient absorption, increased faecal bulk, lowering of blood lipids, prevention of colon cancer, barrier to digestion, mobility of intestinal contents, increased faecal transit time and fermentability characteristics (22). Ragi also contains a functional fibre fraction known as RS, this escapes the enzymatic digestion, imparts beneficial effects by preventing several intestinal disorders (23,24). As it escapes digestion and provides fermentable carbohydrates for colonic bacteria. It also provide benefits such as the production of desirable metabolites, including short-chain fatty acids in the colon, especially butyrate, which seems to stabilize colonic cell proliferation as a preventive mechanism for colon cancer. Besides its therapeutic effects, resistant starch (RS) provides better appearance, texture, and mouth feel than conventional fibres (25). Daily consumption of Ragi malt porridge will increase stool bulk and decrease increase of constipation without causing dependency on laxatives.

5. Conclusion

Daily consumption of sprouted ragi malt significantly improves bowel function and stool consistency in patients with chronic constipation. Given its high calcium and iron content, it serves as both a nutritional supplement and a therapeutic agent, offering a natural, sustainable alternative to long-term laxative use.

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