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Role of Probiotics on Bowel Syndrome Treatments: Systematic Review

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Abstract: **Irritable Bowel Syndrome (IBS) is a typical chronic gastrointestinal disorder, specified by stomach pain, bowel dysfunction and bloating in the lack of structural abnormality. A number of recommendations were figured out by the search strategy. Sixteen studies pleased the main choice requirements for this examination. Probiotics may have a role in relieving some of the signs of IBS, a condition for which presently proof of efficiency of drug treatments is weak. Longer term trials are suggested as IBS is a condition that is chronic and usually periodic.**

The aim of this systematic review of randomized trials study was to evaluate the efficacy of probiotics in alleviating symptoms in patients with irritable bowel syndrome.

Keywords: **Irritable Bowel Syndrome (IBS), chronic and usually periodic.**

1. INTRODUCTION

Irritable Bowel Syndrome (IBS) is a common chronic gastrointestinal disorder, characterized by abdominal pain, bowel dysfunction and bloating in the lack of structural abnormality [(1)].Mucosal inflammation and alterations in gut microflora might contribute to the development of IBS symptoms [(2)]. In the West, about 15% of the population is affected at some time throughout their life, and it is more common in females [(3)]. IBS is likewise recognized in children [(4)]. IBS is the most common diagnosis made by gastroenterologists [(5)]. The proof for efficacy of a lot of drug treatments in the treatment of IBS is weak [(6)].However ,a popular alternative is probiotics, which have been used in several conditions of IBS. Probiotics are live microbial food supplements [(7,8)]. Their mechanism of action on IBS symptoms is not totally comprehended, although several theories have been postulated. Probiotics reportedly bind to little and large bowel epithelium and produce compounds with antibiotic residential or commercial properties that may prevent attachment and invasion by pathogenic organisms [(9-11)].Probiotics may also modulate gastrointestinal luminal immunity by altering the cytokine and cellular scene from a pro-inflammatory to anti-inflammatory state [(12-15)]. They might also transform undigested carbs into short chain of fatty acids, which serve as nutrients for colonocytes and change gut motility. It has actually been theorized that probiotics may lead to symptomatic improvements in clients with IBS, and it has actually been hypothesized that each individual bacterial stress or a combination of stress might impact choose subclasses of signs [(16)].The aim of this systematic review of randomized trials study was to evaluate the efficacy of probiotics in alleviating symptoms in patients with irritable bowel syndrome.

2. METHODOLOGY

We searched Ovid versions of MEDLINE, EMBASE and PUDMED up to 2015, As well as the Cochrane Database of Systematic Reviews and Cochrane Controlled Trials Register. MESH terms used were 'PROBIOTICS' and 'COLONIC DISEASE', 'FUNCTIONAL' or 'IRRITABLE BOWEL SYNDROME'. Further terms were included as text words. A high sensitivity "therapy" (trials) filter was applied to the EMBASE search. No other limits were applied to any of the searches. In addition, we hand searched the reference lists of retrieved full-text papers.

3. RESULTS AND DISCUSSION

Characteristics of selected studies:

A total of 46 recommendations were recognized by the search technique. Sixteen research studies satisfied the primary selection requirements for this evaluation. The probiotics utilized in these studies were commonly variable and included

the **combination preparations VSL no. 3**, **prescript assist**, and **SCMIII** as well as **multiple species of *Lactobacillus* and *Bifid bacterium*.**

1. Combination probiotics *VSL no. 3*.

VSL no. 3 is a combination preparation including three types of Bifidobacterium, 4 types of Lactobacillus, and one type of Streptococcus salivarius. 2 studies, both carried out by Kim et al at the Mayo Clinic satisfied our inclusion requirements[17,18]. In the very first research study, VSL no. 3 was compared to placebo in 25 patients for the primary symptom outcome satisfactory relief of IBS signs. At the conclusion of the study, no considerable distinction in IBS symptoms was determined between the VSL no. 3 and placebo group (38 vs. 33%, respec- tively, P=1.00). Five secondary IBS signs were evaluated and a statistically substantial decrease in bloating was recognized in the VSL no. 3 group compared to placebo ($P < 0.05$).

2. Prescript assist:

Prescript assist is a combination probiotic including 29 bacteria (FloraStat, Safer Medical Inc.) with a prebiotic component. One research study utilizing this formula satisfied criteria for inclusion in this review [19]. Twenty-five patients were randomized to get prescript assist or placebo, and 13 IBS-related symptoms were examined. Statistically considerable reductions in general ill feeling/nausea (factor score (FS) = 0.345, P = 0.042), indigestion/flatulence (FS = 0.544, P= 0.008), and "colitis" (FS= 0.826, P= 0.003) were recognized compared with placebo.A cautious evaluation of this research study showed several imperfections consisting of short research study period, small sample size, and a lack of power computations. In addition, we were unable to determine whether stratified randomization was used, and the analytical analysis of the medical endpoints was non-traditional. The preliminary assessment of IBS symptoms was made by a 6-point survey instrument. This was then analyzed utilizing an optimum likely-hood aspect analysis to figure out whether 13 sub-syndromic symptoms could be integrated to represent all the examined symptoms. This analysis resulted in the 3 previously mentioned clusters. No direct analytical contrasts were carried out for any of the 13 IBS symptoms. No unfavorable events or issues with tolerability were recognized.

3. SCM III:

SCM III is a substance consisted of three probiotic species: Lactobacillus acidophilus, Lactobacillus helveticus, and Bifidobacterium sp. One research study using this formula satisfied requirements for inclusion in this review [20]. Sixty-eight patients received either an active or heat suspended solution of SCM III for 12 weeks. Main endpoints consisting of general scientific status, overall scientific improvement, and overall effectiveness at 6 and 12 weeks, and secondary endpoints abdominal pain, stomach bloating, and adjustments in bowel routines were evaluated. Statistically considerable improvements were experienced in general efficacy ($P < 0.01$) at 12 weeks. Considerable enhancements in stomach bloating at 6 weeks, abdominal pain at 6 and 12 weeks, and bowel habits at 3, 6, and 12 weeks were also reported, however no P values were reported. A number of limitations in the study design and analysis of the data deserve discussion. This study was single blinded and pseudo-randomized. The sample size was little, intention-to-treat analysis was not reported, and power calculations could not be identified for any of the primary or respectively) and severity scores (group A-- 49/56%, group B-- 55.6/ 55.6% at 2 and 4 weeks, respectively); nevertheless, these results were not evaluated for statistical significance due to the limited variety of patients initially registered. No information on safety or tolerability was reported.

4. Combination *L. rhamnosus* GG and LC705, *B. breve* Bb99, and *Propionibacterium freudenreichii* spp. *shermanii* JS

A single study using this probiotic mix fulfilled requirements for addition in this evaluation [21]. An overall of 103 patients were pseudo-randomized to take in either the probiotic combination or placebo for 6 months. Abdominal pain, flatulence, distention, and borborygmi separately and collectively, in addition to modifications in frequency of defecation (BMs) were assessed throughout months 4-6 and throughout month 6 alone. Each was defined as a primary endpoint. Twelve secondary end points were also assessed. Substantial improvements in two of the main end points, overall symptom score

(P=0.037), and borborygmi (P=0.008) were appreciated during months 4-- 6 compared to controls. The overall symptom score during month 6 was also significantly improved (P = 0.015). 2 of the secondary endpoints seriousness (P=0.021) and incomplete evacuation (P=0.039) were also found to be considerably much better throughout months 4-6. No significant distinctions were identified for any of the other main or secondary endpoints.

Several research study design constraints deserve discussion. Initial power estimations figured out that 84 patients would be required to identify significant distinctions in between groups, nevertheless, the specific end point for which this estimation was made and analytical corrections for several end points were not recognized. Furthermore, information from only 81/103 (79%) patients was included in the final analysis resulting in a per-protocol assessment. Antibiotic usage during the research study duration was documented for both the control (50%) and placebo groups (27%), however the distinction reached analytical significance (P = 0.032), and perhaps confounded the findings. A subgroup analysis for the total symptoms score was completed for patients not getting prescription antibiotics (N = 50) and the findings no longer reached statistical significance (P = 0.062). Adverse effects were properly recognized, but tolerability was not reported.

4. CONCLUSION

Probiotics may have a role in relieving some of the symptoms of IBS, a condition for which presently proof of effectiveness of drug therapies is weak. Longer term trials are recommended as IBS is a condition that is usually intermittent and chronic. More research should focus on the type, optimal dose of probiotics and the subgroups of patients who are likely to benefit the most.

REFERENCES

[1] Agrawal A, Whorwell PJ: Irritable bowel syndrome: diagnosis and management. BMJ. 2006, 332 (7536): 280-3. 10.1136/bmj.332.7536.280.

[2] Darren M Brenner MD, Matthew J Moeller MD, William D Chey MD and Philip S Schoenfeld MD, MSEd, MSc (Epi) : The Utility of Probiotics in the Treatment of Irritable Bowel Syndrome . *Am J Gastroenterol* 2009; 104:1033–1049; doi:10.1038/ajg.2009.25; published online 10 March 2009

[3] Drossman DA, Whitehead WE, Camilleri M: Irritable bowel syndrome: a technical review for practice guideline development. Gastroenterology. 1997, 112 (6): 2120-37. 10.1053/gast.1997.v112.agast972120.

[4] Maxwell PR, Mendall MA, Kumar D: Irritable bowel syndrome. Lancet. 1997, 350 (9092): 1691-5. 10.1016/S0140-6736(97)05276-8.

[5] Drossman DA, Camilleri M, Mayer EA *et al.* AGA technical review on irritable bowel syndrome. Gastroenterol 2002;123:2108–31.

[6] Quartero AO, Meineche-Schmidt V, Muris J, Rubin G, de WN: Bulking agents, antispasmodic and antidepressant medication for the treatment of irritable bowel syndrome. Cochrane Database Syst Rev. 2005, CD003460-2

[7] D'Souza AL, Rajkumar C, Cooke J, Bulpitt CJ: Probiotics in prevention of antibiotic associated diarrhoea: meta-analysis. BMJ. 2002, 324: 1361-10.1136/bmj.324.7350.1361.

[8] Floch MH: Prebiotics, probiotics and dietary fiber. Clinical Nutrition: A Guide to Gastroenterologists. NJ. Slack. Edited by: Buchman A. 2005

[9] Johansson ML, Molin G, Jeppsson B *et al.* Administration of different *Lactobacillus* strains in fermented oatmeal soup: *in vivo* colonization of human intestinal mucosa and effect on the indigenous flora. Appl Environ Microbiol 1993;59:15–20.

[10] Alander M, Korpela R, Saxelin M *et al.* Recovery of *Lactobacillus rhamnosus* GG from human colonic biopsies. Lett Appl Microbiol 1997;24:361–4.

[11] Silva M, Jacobus NV, Deneke C *et al.* Antimicrobial substance from a human *Lactobacillus* strain. Antimicrob Agents Chemother 1987;31: 131–1233.

[12] 16. Pathmakanthan S, Li C, Cowie J *et al. Lactobacillus plantarum* 299: Benefi- cial *in vitro* immunomodulation in cells extracted from inflamed human colon. J Gastroenterol Hepatol 2004;19:166–73.

[13] Borruel N, Casellas F, Antolin M *et al.* Effects of non-pathogenic bacteria on cytokine secretion by human intestinal mucosa. Am J Gastroenterol 2003;98:865–70.

[14] Menard S, Candalh C, Bombou JC *et al.* Lactic acid bacteria secrete metabolites retaining anti-inflammatory properties after intestinal transport. Gut 2004;53:821–8.

[15] O'Mahony L, McCarthy J, Kelly P *et al. Lactobacillus* and *Bifidobacterium* in irritable bowel syndrome: Symptom responses and relationship to cytokine profiles. Gastroenterol 2005;128:41–551.

[16] Floch MH. Use of diet and probiotic therapy in the irritable bowel syndrome. J Clin Gastroenterol 2005;39:S243–6.

[17] Kim HJ, Camilleri M, McKinzie S *et al.* A randomized controlled trial of a probiotic, VSL#3, on gut transit and symptoms in diarrhea-predominant irritable bowel syndrome. Aliment Pharmacol Ther 2003;17:895–904.

[18] Kim HJ, Vazquez Roque MI, Camilleri M *et al.* A randomized controlled trial of a probiotic combination VSL#3 and placebo in irritable bowel syndrome with bloating. Neurogastroenterol Motil 2005;17:687–96.

[19] Bittner AC, Croffut RM, Stranahan MC. Prescript-Assist probiotic- prebiotic treatment for irritable bowel syndrome: A methodologically oriented, 2-week randomized placebo-controlled, double-blind clinical study. Clin Ther 2005;27:755–61.

[20] Tsuchiya J, Barreto R, Okura R *et al.* Single blind follow-up study on the effectiveness of a symbiotic preparation in irritable bowel syndrome. Chin J Dig Dis 2004;5:169–74.

[21] Kajander K, Hatakka K, Poussa T *et al.* A probiotic mixture alleviates symptoms in irritable bowel syndrome patients: A controlled 6-month intervention. Aliment Pharmacol Ther 2005;22:387–94.