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Effect of Probiotics on Reducing Gastrointestinal Complications in Colorectal Cancer Patients: A Systematic Review

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ABSTRACT

Introduction: The prevalence of gastrointestinal cancers, especially colorectal cancer (CRC), has increased globally. CRC ranked third in prevalence and is the second leading cause of among patients. Common CRC treatments, including surgery, chemotherapy, and radiation therapy, are associated with many complications during and post treatment. Different strategies can be used to manage the side effects of treatment. Probiotic compounds greatly reduce the side effects of CRC treatments. This study aimed to investigate the efficacy of probiotics in reducing gastrointestinal complications caused by CRC treatment.
Methods and Materials: The present systematic review was conducted in Embase and Cochrane library databases, Scopus, Medline, and Web of Science until January 2024. English keywords included "probiotics" OR "prebiotics" OR "synbiotics" AND "postoperative complications" OR "surgery complications" OR "chemotherapy complications" OR "radiotherapy complications" AND "colorectal cancer". This review has defined the inclusion criteria of articles based on the PICOS (population, intervention, comparison, outcome, and study design) approach. Inclusion criteria included (1) adults aged 18 years and older with CRC who were treated with surgery, chemotherapy, and radiation therapy, (2) studies related to the effects of probiotics, (3) research focused on reducing complications associated with CRC treatment, and (4) randomized trial articles. The risk of bias in the included studies was assessed by the Cochrane Collaboration Risk of Bias Tool.
Results: Based on the inclusion criteria, data of 21 studies were extracted. The average duration of the intervention was 57.1 days, with Lactobacillus species being the most commonly used type of bacteria, followed by bifidobacteria species. The results of the study showed that before and after surgery, as well as post-chemotherapy, probiotics are most effective in managing gastrointestinal complications, such as diarrhea, flatus, abdominal distention, fist defecation time, abdominal cramping, first postoperative bowel movement, and anastomotic leak respectively (p = 0.05).
Conclusion and Discussion: The use of probiotics seems to be effective in reducing the incidence and control of gastrointestinal complications caused by CRC treatments. In addition, they reduce the duration of hospitalization and the use of antibiotics and improves the quality of life of patients with CRC.

Keywords: Colorectal neoplasms, Postoperative complications, Prebiotics

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