

Systematic Review

Citation	Design/Method Sample/Setting	Variables and Intervention	Outcome Measures	Results/Analysis	Limitations	Quality and Nursing Implications
<p>Xu, B., Wang, X., Wang, H., Cao, L., Ge, Y., Yuan, B., . . . Li, J. (2022). Efficacy and safety of herbal formulas with the function of gut microbiota regulation for gastric and colorectal cancer: A systematic review and meta-analysis. <i>Frontiers in Cellular and Infection Microbiology</i>, 12, 875225. https://doi.org/10.3389/fcimb.2022.875225</p>	<p>Design: Systematic review and meta-analysis</p> <p>Method: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used to guide a search of the following 8 databases: PubMed®, Embase®, CENTRAL, Web of Science, Chinese Biomedical Literature Database, China National Knowledge Infrastructure, Wanfang Database, and Chinese Scientific Journals Database, as well as two registries for randomized controlled trials (RCTs) studying effects of herbal formulas on gut microbiota regulation. Risk of Bias 2 tool was used for quality assessment. Review of synthesized evidence used the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach.</p> <p>Sample: 53 RCTs involving 4,478 patients (sample size range: 17–336) with gastric cancer (GC) or colorectal cancer (CRC) using herbal formulas with or without other treatments reporting on measures of gut microbiota regulation.</p> <p>Setting: Perioperative, postoperative, and advanced cancer treatment</p>	<p>Independent Variable: Use of herbal formulas with gut microbiota–regulating function (most reported include: <i>Bacteroides</i>, <i>Bifidobacterium</i>, <i>Lactobacillus</i>, <i>E. faecalis</i>, and <i>Escherichia coli</i>)</p> <p>Dependent Variables: Multiple safety, performance status, and survival outcomes in patients with perioperative, postoperative, and advanced GC and CRC, including Karnofsky Performance Status (KPS), diarrhea, nausea and vomiting, renal and hepatic function, quality of life (QOL), objective response rate, adverse events, and disease-free survival</p>	<p>Incidence rates in patients with GC and CRC of diarrhea, KPS, incidence rates of other adverse events (nausea and vomiting, renal and hepatic function, response rate, and disease-free survival), European Organisation for Research and Treatment of Cancer Core Quality of Life Questionnaire–Core 30 (EORTC QLQ-C30)</p>	<p>Diarrhea outcomes reporting: Perioperative CRC: No significant differences in incidence of diarrhea between herbal formulas and chemotherapy versus chemotherapy alone.</p> <p>Perioperative GC: No significant differences in incidence of diarrhea between herbal formulas and chemotherapy versus chemotherapy alone.</p> <p>Postoperative CRC: No significant differences in incidence of diarrhea between herbal formulas and chemotherapy versus chemotherapy alone.</p> <p>Postoperative GC: Only one study reported on this outcome (n = 46 intervention arm, n = 36 control arm, relative risk [RR] = 0.50, 95% confidence interval [CI] [0.26, 0.97]).</p> <p>Advanced CRC: 59% reduction in incidence of diarrhea with herbal formulas plus chemotherapy versus chemotherapy alone (5 trials, n = 308, RR = 0.41, 95% CI [0.25, 0.97]).</p> <p>Advanced GC: 30% reduction in incidence of diarrhea with herbal formulas plus chemotherapy versus chemotherapy alone (4 trials, n = 379, RR = 0.70, 95% CI [0.53, 0.91]).</p>	<p>Of 21 studies assessed, 14 were deemed low certainty, and 7 were very low certainty. Evidence was downgraded because of risk of bias and limited sample sizes in the included studies.</p> <p>RCTs had a low rate of blinding.</p> <p>Age, gender, race, culture, diet, and geographic location may influence gut microbiota and were not reported.</p>	<p>The quality of included RCTs evaluated was low, with some concerns about high risk of bias.</p> <p>Inclusion of herbal formulas had positive results for reduction of diarrhea in postoperative GC, advanced GC, and advanced CRC with no differences in adverse events compared to control groups. Risk of bias and lower quality ratings of the included studies indicate a need for more quality RCTs on the effect of herbal formulas on gut microbiota in GC and CRC.</p> <p>In this systematic review, herbal formulas had positive effects in preoperative, postoperative, and advanced settings for GC and CRC. These include early flatus and GI function, tumor response, QOL, KPS, and reduced incidence of adverse events. In studies comparing chemotherapy alone to chemotherapy plus herbal formulas, incidence of diarrhea was reduced in postoperative CRC by 50% (RR = 0.50, 95% CI [0.26, 0.97]), in advanced CRC by 59% (RR = 0.41, 95% CI [0.25, 0.67]), and in advanced GC by 30% (RR = 0.70, 95% CI [0.53, 0.91]). Risk of bias and lower quality ratings of the included studies indicate a need for more quality RCTs about the effect of herbal formulas on gut microbiota in GC and CRC.</p>