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Perioperative Risk in Colon Cancer: The Dual Burden of Tumor-Related Anemia and Cardiac Comorbidity

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Abstract
Background: Colon cancer is a common malignancy with significant complications, particularly gastrointestinal bleeding and anemia, requiring emergent transfusions. The aim of the study is to explore the complex relationship between emergent transfusions in colon cancer patients and their concurrent cardiac pathology.
Methods: A retrospective case-control study conducted between January 2020 - February 2024 in South-Eastern Romania focused on adult patients with colon cancer and moderate/severe anemia. The study included patients with advanced-stage colon adenocarcinoma, complicated tumors requiring blood transfusions, and excluded those with mild anemia, cancer history, or previously transfusions for the same condition. Patients were analyzed based on their anemia severity, demographic and clinical characteristics, and perioperative outcomes, with a specific focus on the impact of concurrent cardiac pathology.
Results: The study included 153 patients, divided into two groups based on anemia severity: moderate anemia (MA, n=124) and severe anemia (SA, n=29). No significant differences were found in tumor histopathology or stage between the two groups, though significant differences were observed in blood loss, invasions, and transfusion needs. Postoperative outcomes showed a higher rate of complications, longer hospital stays, and increased mortality in the SA group compared to the MA group. Additionally, cardiac comorbidities were associated with more severe anemia, increased intraoperative blood loss, longer surgery duration, and a higher need for transfusions, as well as more frequent postoperative complications.
Conclusions: Severe anemia and pre-existing cardiac conditions are linked to poorer surgical outcomes, greater transfusion requirements, and higher complication rates.
Keywords: colon cancer, anemia, transfusions, cardiac pathology, complications