

Prognostic Scoring in Rectal Cancer Surgery: Evaluating the Efficacy of E-PASS, POSSUM, CR-POSSUM and ACPGBI in Risk Assessment, Complications Analysis, and Outcome Improvement — Findings from a Single-Center Study

Valentin Calu^{1,2}, Catalin Piriianu^{1,2}, Adrian Miron^{1,2}, Elena-Adelina Toma^{1,2}, Octavian Enciu^{1,2}, Mugur Ardelean¹ and Valentin Titus Grigorean^{2,3}

¹Department of Surgery, Elias University Emergency Hospital, 011461 Bucharest, Romania

²Department of Surgery, Carol Davila University of Medicine and Pharmacy, 020021 Bucharest, Romania

³Department of Surgery, Bagdasar-Arseni Clinical Emergency Hospital, 041915 Bucharest, Romania

Abstract

Background: Prognostic scoring systems are critical for assessing preoperative risk and forecasting outcomes in rectal cancer surgery. This study evaluates the effectiveness of four scoring systems - Estimation of Physiologic Ability and Surgical Stress (E-PASS), Physiological and Operative Severity Score for the Enumeration of Mortality and Morbidity (POSSUM), Colorectal-POSSUM (CR-POSSUM), and the Association of Coloproctology of Great Britain and Ireland (ACPGBI) - in predicting postoperative complications and mortality.

Methods: A retrospective study was conducted involving 67 patients who underwent surgery for rectal cancer. The scoring systems were assessed concerning postoperative outcomes, including complications, morbidity, and 30-day mortality rates. Statistical analyses included t-tests, chi-square tests, and logistic regression.

Results: Patients with complications (n = 39) demonstrated significantly higher scores across all systems. The Comprehensive Risk Score (CRS) derived from E-PASS (11.43 versus 8.95, p = 0.001) and the ACPGBI score (1.95 versus 1.27, p = 0.0005) demonstrated the most significant correlation with complications. Elevated physiological and operative scores correlated with increased morbidity, underscoring their prognostic importance.

Conclusions: Scoring systems such as E-PASS, POSSUM, CR-POSSUM, and ACPGBI effectively stratify the risk associated with rectal cancer surgery. Clinical integration enhances the identification of high-risk patients, which informs interventions designed to optimize outcomes.

Key words: rectal cancer, postoperative complications, prognostic scoring systems, E-PASS, POSSUM, CR-POSSUM, ACPGBI, surgical stress, risk assessment, mortality prediction