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Surgical APGAR score does not predict morbidity and mortality for patients undergoing pancreaticoduodenectomy for pancreatic adenocarcinoma

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Introduction: The Surgical APGAR was published in 2007 as a simple method for predicting postoperative morbidity and mortality for patients undergoing General Surgery operations. The Surgical APGAR consists of three objective measures of an individual's intra-operative course: the lowest heart rate, the lowest mean arterial blood pressure (MAP), and the estimated blood loss (EBL). The Surgical APGAR was shown to predict major morbidities for patients undergoing pancreaticoduodenectomy; the purpose of this study was to validate that the Surgical APGAR predicts major morbidity and mortality for patients undergoing pancreaticoduodenectomy for pancreatic adenocarcinoma.

Methods: Patients who underwent pancreaticoduodenectomy for pancreatic adenocarcinoma from 1991-2012 are prospectively followed. Anesthesia records were reviewed and the lowest heart rate, lowest MAP, and the EBL of the operations were recorded. The Surgical APGAR scores were calculated using the proposed algorithm. Major morbidities were classified using Clavien scores and the in-hospital mortality was assessed. Data are presented as median, mean ± standard deviation. Correlations were calculated using logistic regression analysis and p-values <0.05 were considered significant.

Results: 392 patients underwent pancreaticoduodenectomy for pancreatic adenocarcinoma. The median lowest heart rate was 64, 64±10.5, the median lowest MAP was 64 mmHg, 63 mmHg ±7.9, the estimated blood loss was 500 bpm, 650 bpm ±601.3, and the Surgical APGAR was 6, 6±1.4. The lowest heart rate, lowest MAP, or EBL did not independently or in combination correlate with Clavien scores. There was no correlation between Surgical APGAR and Clavien scores.

Conclusion: Pancreatic cancer is the fourth leading cause of cancer death in the United States and has the highest fatality rate. Complications with pancreaticoduodenectomy for pancreatic adenocarcinoma remain high and contribute to poor survival. Scoring systems to predict complications after surgical intervention have been developed but have been cumbersome to calculate, inaccurate, and impractical. The introduction of the uniquely simple Surgical APGAR provided hope for a practical prospective predictor of complications and early mortality for patients undergoing surgical operations. The Surgical APGAR was initially found to correlate with major complications following pancreaticoduodenectomy; however, this study refutes these findings. Herein, we show that the Surgical APGAR does not predict major morbidity or mortality for patients undergoing pancreaticoduodenectomy for pancreatic adenocarcinoma. Still, intuitively, patients benefit from short operations without hemodynamic instability and blood loss or transfusions.

Biography

Sharona Ross completed her General Surgery residency at the University of South Florida, College of Medicine, Department of General Surgery and was later awarded the prestigious HPB/Advanced Gastrointestinal Surgery and Minimally Invasive Surgery Fellowship at USF/Tampa General Hospital. She then completed an Endoscopic Gastroenterology Fellowship at the Division of Digestive Disorders & Nutrition, Department of Medicine, University of South Florida. She is currently the Director of Minimally Invasive Surgery, Director of Surgical Endoscopy, Founder & Director of the FHT Women in Surgery Initiative at Florida Hospital Tampa and the Program Director/Chair of the 2010, 2011, 2012 and the upcoming Annual International Women in Surgery Career Symposium. She was one of the first surgeons in the United States to undertake Laparo-Endoscopic Single Site (LESS) surgery, and continues to develop new techniques and instrumentation to improve its safety and application. As a thought leader in American medicine, she continues to push the envelope in the advancement of Minimally Invasive Surgery.

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