

Preoperative Computed Tomography Nutritional Parameters as Predictors of Adverse Outcomes Following Pancreaticoduodenectomy: A Retrospective Study at a Cancer Center

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ABSTRACT

Pancreaticoduodenectomy (PD) is the only curative option for patients with pancreatic cancer. The mortality rate has decreased; however, postoperative complications pose a significant risk, and nutritional deficiency in such patients further worsens their prognosis. Some nutritional parameters measured using computed tomography (CT) are known to be associated with surgical outcomes. We aimed to evaluate 30-day morbidity and mortality rates and assess their association with radiologic nutritional parameters. We collected patient baseline characteristics, and measured radiologic malnutrition indicators such as psoas muscle area, bone density, and aorta-to-fascia distance using CT. Unadjusted and adjusted logistic regression models were used to determine odds ratios to determine the association between malnutrition measures. Multivariate logistic regression models were used to determine R² and area under the receiver operating characteristic curve values, measuring the improvement in predictive accuracy and discriminative ability of the baseline model after adding malnutrition measures to the model. Between 2013-2019, 58 patients underwent PD. Postoperative outcomes indicated 30-day mortality rate of 10%. A higher mean psoas muscle area was associated with a lower likelihood of cardiovascular events. A higher baseline bone density was associated with a lower risk of cardiovascular events, anastomotic leakage, and urinary tract infections. A higher aorta-to-anterior fascia distance predicted a higher risk of anastomotic leakage. Malnutrition is common in patients with pancreatic cancer, and CT measurements of sarcopenia, osteopenia, and obesity have an evolving role in predicting postoperative outcomes. Future research could help determine the precise role of these parameters in predicting individual outcomes.

Keywords: *pancreaticoduodenectomy; postoperative complications; radiologic malnutrition parameters; sarcopenia*

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