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Pre-drainage and post-drainage prognostic nomograms to predict outcome of percutaneous drainage in the "step-up approach" for necrotizing pancreatitis

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Introduction : Percutaneous catheter drainage (PCD) with saline irrigation alone is effective in a large proportion of patients with pancreatic necrosis treated with the step-up approach. Early identification of patients who are likely to fail PCD helps in early referral and treatment.

Methods : Single-center retrospective cohort study using data from a prospectively maintained database. Patients with necrotizing pancreatitis undergoing PCD as initial intervention were included. Patients who did not respond underwent necrosectomy. Univariate and multivariate analysis for predictors of PCD failure (i.e. mortality or need for necrosectomy) were performed. Models were constructed for pre- and post-drainage use, and were internally validated.

Results : A total of 304 patients were included, of which 221(72.6%) had severe disease. PCD was successful in 59.8%. Overall mortality was 26%. The pre-drainage model consisted of APACHE-II score at admission, early organ failure and pancreatic necrosis>50%. The post-drainage model consisted of APACHE-II at first PCD, early organ failure, pancreatic necrosis>50%, sepsis reversal within one week of PCD and E. coli in initial PCD culture. Both models were internally validated with bootstrapping with 3000 resamples and area under ROC curve was 71.2% for pre-PCD and 81.2% for the post-PCD model. Prognostic nomograms were constructed to determine the probability of PCD failure. On plotting calibration curve, both models showed high reliability.

Conclusions : Percutaneous catheter drainage with saline irrigation alone was successful in 59.8% with mortality of 26%. Both pre- and post-PCD models were well-calibrated and reliable. These nomograms can help in guiding treatment strategy and early referral of high-risk cases.

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