A novel preoperative predictor of pancreatic fistula using computed tomography after distal pancreatectomy with staple closure

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Abstrak

PURPOSE: A thick pancreas has proven to be a conspicuous predictor of pancreatic fistula (PF) following distal pancreatectomy (DP) using staples. Other predictors for this serious surgical complication currently remain obscure. This study sought to identify novel predictors of PF following DP.

METHODS: One hundred and twenty-two patients were retrospectively assessed to determine the correlation between PF occurrence and the clinicopathological findings and radiologic data from preoperative computed tomography (CT). CT assessments included the thickness of the pancreas (TP) and pancreatic CT number (pancreatic index; PI), calculated by dividing the pancreatic CT by the splenic CT density.

RESULTS: Twenty-four patients (19.7%) developed a clinically relevant PF. TP was identified as an independent risk factor for PF in multivariate analyses (odds ratio 1.17; P=0.0095). In subgroup analyses, a lower PI in a thick pancreas was a significant predictor of PF (P=0.032). The combination of these two prediction parameters, known as the TP-to-PI ratio (TPIR), showed a significantly better prediction ability than TP alone (area under the receiver operating characteristic curve for the incidence of PF, TPIR 0.80 vs. TP 0.69; P=0.037).

CONCLUSION: Combining the CT number with TP substantially improves the prediction ability for the incidence of PF following DP with staple use.