BP BEST OP 5

Association Between Pancreatic Fibrosis And Development Of Pancreoprivic Diabetes After Pancreaticoduodenectomy

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Background : The term 'pancreoprivic diabetes', historically referred to as type 3c diabetes mellitus, is used to define diabetes caused by loss or destruction of the endocrine pancreas. The loss of pancreatic parenchyma plays an important role in the pathogenesis of pancreoprivic diabetes, which is characterized by insulin deficiency and increased peripheral insulin sensitivity. Pancreatic fibrosis (PF) also destroys pancreatic tissue, which results in insulin deficiency. Therefore, we aimed to evaluate the effect of PF on the development of pancreoprivic diabetes after pancreaticoduodenectomy (PD).

Methods : Ninety-five patients who underwent PD at Gangnam Severance Hospital between 2014-2017 were enrolled. Baseline characteristics, perioperative outcomes, and pathologic findings were investigated. PF grade was evaluated with alpha-smooth muscle actin (SMA) and Masson's trichrome (TRC) staining. New-onset pancreoprivic diabetes and recurrence of disease were evaluated using fasting blood glucose measurement, oral glucose tolerance test, tumor marker, and radiography taken at 3-month intervals. The cumulative incidence of hyperglycemia and disease-free survival of patients with pancreatic cancer were plotted using the Kaplan-Meier method, and intergroup differences in survival time were assessed with the log-rank test.

Results : The mean age of the patients was 64.2 years, and the study population included 60 males (63.2%). Sixty-one patients did not have preoperative diabetes, however, 40 (65.6%) patients developed pancreoprivic diabetes after PD. High-grade PF was more common in the diabetes group than in the normal group (SMA, 42.5% vs. 28.6%, p=0.747; TRC, 47.5% vs. 28.6%, p=0.361). The 1-year cumulative incidence of hyperglycemia/pancreoprivic diabetes was higher with high-grade PF than low-grade PF (SMA, 94.4% vs. 73.0%, p=0.027; TRC, 89.3% vs. 75.0%, p=0.074). The SMA-TRC combined high-grade group had a higher proportion of primary pancreatic disease than the combined low-grade group (90.0% vs. 37.5%, p=0.001). The 5-year disease-free survival of patients with pancreatic cancer was worse with high-grade PF than low-grade PF (SMA, 24.5% vs. 66.3%, p=0.026; TRC, 23.6% vs. 58.4%, p=0.047).

Conclusions : In conclusion, hyperglycemia and pancreoprivic diabetes after PD were more likely to occur in patients with severe PF. PF in pancreatic cancer affects disease-free survival. Assessing PF on a histopathologic level may help predict patient prognosis after PD

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