Paradoxical impact of the remnant pancreatic volume and infectious complications on the development of nonalcoholic fatty liver disease after pancreaticoduodenectomy

Background: The aim of the present study was to evaluate perioperative risk factors for development of nonalcoholic fatty liver disease (NAFLD) after pancreaticoduodenectomy (PD), paying special attention to remnant pancreatic volume (RPV) and postoperative infection.

Methods: We reviewed the charts of 110 patients who had been followed more than 6 months after PD. These patients were classified into the two groups according to RPV measured by CT volumetry at one month: large-volume group (LVG) (10 ml or more, n = 75) and small-volume group (SVG) (less than 10 ml, n = 35).

Results: Nonalcoholic fatty liver disease developed in 44 (40.0%), being significantly higher in SVG than in LVG: 54.2% vs. 33.3% (P = 0.037). SVG was characterized as significantly higher incidence of pancreatic adenocarcinoma, while LVG was characterized as significantly higher incidences of soft pancreas, postoperative infection and pancreatic fistula. In LVG, the incidence of NAFLD was significantly higher in patients with suspicion of infection than in those without it: 45.2% vs. 18.1% (P = 0.014), while not different in SVG. By multivariate analysis, independent risk factor was determined as RPV and suspicion of infection in the whole patients, and in LVG it was suspicion of infection, while in SVG it was not identified.

Conclusion: After PD, RPV and status of postoperative infection paradoxically influenced the development of NAFLD.