BP BEST OP 1

Hepatic Artery Protection Using Polyglycolic Acid Sheet During Pancreaticoduodenectomy: A Multicenter Study

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Background : Postpancreatectomy hemorrhage (PPH) is the most feared complication after pancreaticoduodenectomy (PD). It is rare, but can lead to grave outcomes, even mortality. The most common cause is erosion of the gastroduodenal artery stump in the setting of a postoperative pancreatic fistula (POPF). Preventive measures have been previously reported, but a consensus is lacking. The aim of this study was to analyze the preventive effect of hepatic artery protection using polyglycolic acid sheet (PAS) during pancreaticoduodenectomy.

Methods : A multicenter retrospective study was performed, collecting data from three tertiary hospitals in Korea. Patients receiving PD from January 2016 to December 2021 were included. Patients with an ASA class of III or over, those who received combined organ resection, and those who received pancreaticogastrostomy were excluded. The primary endpoint was rate of PPH, and the secondary endpoints were postoperative complications and mortality. The hepatic artery was wrapped with NeoveilTM (Gunze, Tokyo, Japan). A NeoveilTM medium size was cut longitudinally in half, and both pieces were wrapped around the hepatic artery from the proximal root of the common hepatic artery, to the bifurcation of the proper hepatic artery. The gastroduodenal artery stump was completely covered. Fibrin glue was applied to prevent dislocation. Three experienced pancreatic surgeons started this method around 2019. The perioperative data of patients who received surgery before this period were compared with data of those who received this treatment.

Results : A total of 904 patients were analyzed. There were 413 patients who did not receive hepatic artery protection (non-AR group), and 491 patients who did (AR group). There was no difference in the rate of clinically relevant POPF between the two groups. (15.5% vs 12.8%, P=0.291) The rate of PPH was significantly lower in the AR group. (3.1% vs 0.6%, P=0.005) There was no difference in the rate of postoperative complications. (18.9% vs 16.7%, P=0.087) Although the mortality rate of the non-AR group was more than twice that of the AR group, there was no statistical significance. (2.2% vs 1.0%, P=0.184) Risk factor analysis showed CR-POPF and transfusion to be independent risk factors for PPH. Hepatic artery protection was shown to be a strong protective factor for PPH (OR 0.18, 95% CI 0.05-0.69, P=0.012).

Conclusions : The hepatic artery protection method is an effective method that greatly reduces the rate of PPH. It is a simple, rapid method that can be easily performed in all surgical approaches including open, laparoscopy, and robot.

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