

Perioperative And Oncologic Outcomes Of Minimally-invasive Pancreatoduodenectomy Comparing The Surgical Methods : Robot-assisted Vs. Totally Laparoscopic Pancreatoduodenectomy

Jae Seung KANG¹, Jun Suh LEE², Hee Ju SOHN³, Mirang LEE³, Youngmin HAN³, Boram LEE², Moon-Hwan KIM², Hongbeom KIM³, Wooil KWON³, Ho-seong HAN², Yoo-Seok YOON², Jin-Young JANG^{*3}

¹Surgery, Korea University Guro Hospital, REPUBLIC OF KOREA

²Surgery, Seoul National University Bundang Hospital, REPUBLIC OF KOREA

³Surgery, Seoul National University Hospital, REPUBLIC OF KOREA

Background : Minimally-invasive pancreatoduodenectomy (MIPD) such as totally-laparoscopic PD (TLPD) or robot-assisted PD (RAPD) has been widely performed for periampullary tumors. This study aimed to compare the perioperative outcomes among RAPD, TLPD, and open pancreatoduodenectomy (OPD), and compare the oncologic outcomes between MIPD and OPD in malignant disease.

Methods : This was a retrospective study in two large volume centers. One hospital performed RAPD and the other performed TLPD. Patients' demographics, perioperative outcomes, and oncologic results were analyzed. Propensity score matching (PSM) analysis was performed to compare the oncologic outcomes between MIPD and OPD.

Results : Between 2015 and 2020, 332 RAPD and 178 TLPD were performed in each hospital, respectively. Complication rate of Clavian-Dindo grade ≥ 3 (19.3% vs. 20.2%, $P=0.816$), operation mortality rate (1.5% vs. 0.6%, $P=0.482$), clinically-relevant postoperative pancreatic fistula rate (8.8% vs. 11.8%, $P=0.280$), and open conversion rate (6.6% vs. 10.5%, $P=0.163$) were comparable between RAPD and TLPD. Mean operation time was shorter (341 vs. 414 min, $P<0.001$), and postoperative hospital stay was less in RAPD (11 vs. 14 day, $P=0.034$). After PSM, 5-year overall survival (OS) rate was comparable between MIPD and OPD in overall malignant disease (58.2% vs. 61.6%, $P=0.852$), pancreatic cancer (53.4% vs. 37.8%, $P=0.182$), and distal common bile duct cancer (52.6% vs. 67.9%, $P=0.547$).

Conclusions : Since both RAPD and TLPD is safe and feasible, and MIPD has comparable clinical outcomes compared with OPD, surgeons can select the proper surgical methods according to the surgeon's preference and the appropriate indication.

Corresponding Author : Jin-Young JANG (jangjy4@snu.ac.kr)