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Changing Clinical Meaning Of Resection Margin Status According To The Treatment Paradigm And The Potential Role Of Perioperative Radiotherapy In Patients With Pancreatic Ductal Adenocarcinoma

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Background : Surgeons have focused on obtaining microscopically negative margins and developing perioperative treatment strategies in pancreatic head cancer. However, the clinical significance of resection margin and radiotherapy remains unclear, particularly in neoadjuvant chemotherapy (NAC) settings. Therefore, we aimed to evaluate the prognostic impact of margin status and perioperative radiotherapy in patients with pancreatic head cancer.

Methods : Between 2014 and 2019, 307 patients with pancreatic head cancer who underwent upfront pancreaticoduodenectomy (PD) and 97 who underwent NAC followed by PD at three tertiary referral hospitals were included. The margin status was divided into 3-tier system: R0-wide (tumor-free margin ≥ 1 mm), R0-narrow (0 mm < margin < 1 mm), and R1 (margin = 0 mm).

Results : In the upfront surgery setting, the groups were arranged in descending order of the 5-year overall survival (OS) rates as follows: R0-wide (39.1%), R0-narrow (25.6%), and R1 (12.5%). In the NAC setting, the groups could also be arranged in descending order of 5-year OS rates as follows: R0-wide (52.2%), R0-narrow (45.5%), and R1 (8.3%). However, the differences in OS between the R0-wide and R0-narrow groups did not reach statistical significance (P = 0.587), unlike in the upfront surgery setting. In the multivariate analyses, concurrent chemo-radiotherapy after surgery was significantly associated with a decreased risk of locoregional recurrence in both treatment settings.

Conclusions : Obtaining a wide margin could enhance prognosis in upfront surgery settings and obtaining only a narrow margin could be appropriate in NAC settings. In addition, adjuvant radiotherapy could be considered, particularly in patients with margin involvement.

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