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## Predicting Lymph Node Metastasis Using Preoperative Parameters In Patients With T1 Ampulla Of Vater Cancer For Selecting The Appropriate Extent Of Surgery

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**Background** : Lymph node (LN) metastasis is a well-known prognostic factor in patients with surgically resected ampulla of Vater (AoV) cancer. Pancreatoduodenectomy (PD) is the standard procedure for radical resection including removal of regional LNs, but local excision has been considered as an alternative option for early-stage patients with significant comorbidities. The aim of the study is to investigate preoperative factors associated with LN metastasis (LNM) to determine the appropriate surgical extent in T1 AoV cancer.

**Methods** : Patients who underwent surgery for T1 AoV cancer in Samsung Medical Center and Severance hospital between 2000 and 2019 were included. Risk factor analysis was performed to identify preoperative parameters related to LNM or regional LN recurrence during follow-up. A predictive model was developed using the identified risk factors.

**Results** : Among a total of 342 patients, 311 patients underwent pancreatoduodenectomy and 31 patients had transduodenal ampullectomy. There were 48 patients with pathologic reporting of LNM, and two patients presented with disease recurrence at regional LNs. Age (OR: 1.042,  $p = 0.028$ ), Carbohydrate antigen 19-9 (CA 19-9) (OR: 1.052,  $p = 0.015$ ) and tumor differentiation (OR: 2.755,  $p = 0.009$ ) were related with increased risk of LNM or recurrence at regional LNs. A predictive model with these three factors showed the area under the curve of 0.728.

**Conclusions** : The new predictive model using age, CA 19-9 and tumor differentiation would be useful for selecting patients who need pancreatoduodenectomy rather than local excision. Further in-depth analysis is necessary to explore proper candidates for local excision in early-stage AoV cancer.

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