AB005. S005. A multi-institutional postoperative nomogram for disease recurrence following resection of localized G1/G2 pancreatic neuroendocrine tumors

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Background: Operative resection is the treatment of choice for the majority of patients with localized pancreatic neuroendocrine tumors (PanNET). Although resection is curative in most cases, approximately 17% of patients will experience disease recurrence. The purpose of this study was to develop a nomogram to predict time to recurrence (TTR) for patients with localized G1/G2 PanNET following surgical resection of the primary tumor.
Methods: A prospectively maintained database from Verona University Hospital and Memorial Sloan Kettering Cancer Center was queried to identify patients who underwent resection for G1/G2 PanNET between 2000 and 2016. Exclusion criteria were: the presence of a hereditary syndrome, treatment with neoadjuvant or adjuvant therapy, postoperative mortality and unknown ki67 on pathological report. Time to recurrence was calculated from the date of resection to date of recurrence and estimated using Kaplan-Meier methods. The selection of predictors of recurrence was based on the univariate analysis. The nomogram was constructed to predict the rate of freedom from recurrence at 5 years after surgery, and validated using bootstrap resampling method. Bias corrected c-index was used to evaluate the discriminative power of this prediction tool.
Results: Within the study period, 632 patients met the inclusion criteria. The median age was 57 [18–85] years, and 429 patients (68%) had a G1 tumor. The tumor was functional in 90 patients (14%), and within this group, 77 patients (12%) presented with an insulinoma syndrome. The median tumor size was 2 (0.4–13.5) cm with a median ki67 of 2% (0.3–20%). According to the AJCC 8th staging system, 463 patients (73.3%) had stage I disease, 142 (22.5%) stage II and 54 (8.5%) stage III disease. The median follow-up was 51 months, with 74 patients (12%) having a recurrence. Upon univariate analysis, the number of positive lymph nodes (P<0.001), ki67 (P<0.001), tumor size (P<0.001), R status (P<0.001), vascular invasion (P<0.001), and perineural invasion (P<0.001) were predictors of time to recurrence. Based on these variables a nomogram was created to predict the probability of recurrence free at 5 years after surgery. The nomogram was internally validated using bootstrap resampling with 100 repetitions, and the bias-corrected c-index was 0.86.
Conclusions: Although further external validation is needed, this nomogram accurately predicts disease recurrence after localized primary G1/G2 PanNET resection, and it may serve as a basis for surveillance recommendations following resection.

doi: 10.21037/apc.2018.AB005

Cite this abstract as: Pulvirenti A, Chou JF, Nessi C, Cingarlini S, D'Angelica MI, Kingham TP, Balachandran VP, Landoni L, Jarnagin WR, Salvia R, Allen PJ, Bassi C. A multi-institutional postoperative nomogram for disease recurrence following resection of localized G1/G2 pancreatic neuroendocrine tumors. Ann Pancreat Cancer 2018;1:AB005. doi: 10.21037/apc.2018.AB005