

Long-term Outcomes of Surgical Management of Pancreatic Neuroendocrine Tumors with Liver Metastases

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Background: The value of surgical resection in the management of pancreatic neuroendocrine tumors (PNET) with liver metastases (LM) is still a matter of debate. Aim of the study was to evaluate the outcomes of surgical management of PNET with LM.

Methods: All patients with a diagnosis of stage IV PNET between 2000 and 2011 from four high-volume European Institutions, were retrospectively enrolled in the study. Patients were divided into 3 groups (R0 resection group, R1/R2 resection group, and no resection group). Univariate and multivariable analyses of predictors of progression-free survival (PFS) and overall survival (OS) were performed.

Results: We included 169 patients (94 males and 75 females) with a median age of 51 years. The majority of tumors were PNET G2 (57%) followed by PNET G1 (24%) and PNEC G3 (19%). LM were mainly bilobar ($n=140$, 83%). Overall 19 patients (11%) underwent R0 resection, 74 patients (44%) underwent R1/R2 resection, and 76 patients (45%) underwent only medical treatment. The median overall survival (OS) from diagnosis was 73 months. The 1-year, 2-year and 5-year OS rates were 92%, 80% and 59%. Patients who underwent R0 resection had a significantly better median OS from initial diagnosis compared with those who underwent R1/R2 resection and those who were conservatively treated (97 versus 89 versus 36 months, $P=0.0001$). On multivariate analysis, factors independently associated with OS from initial diagnosis were the presence of bilobar metastases (HR=2.724, 95%CI=1.378-5.383, $P=0.004$), PNEC-G3 (HR=6.138, 95%CI=2.816-13.378, $P=0.0001$) and R0 resection (HR=0.446, 95%CI=0.268-0.741, $P=0.002$). Among 93 patients who underwent surgical resection, the presence of PNEC-G3 was the only factor independently associated with a poorer survival after surgery (median OS: 35 months versus 97 months, $P<0.0001$).

Conclusion: Radical surgical resection of PNET with LM is associated with a significant benefit although surgery should be reserved to well- or moderately differentiated forms.