Update on surgical treatment of pancreatic neuroendocrine neoplasms.

Pancreatic neuroendocrine neoplasms (PNENs) are rare and account for only 2%-4% of all pancreatic neoplasms. All PNENs are potential (neuroendocrine tumors PNETs) or overt (neuroendocrine carcinomas PNECs) malignant, but a subset of PNETs is low-risk. Even in case of low-risk PNETs surgical resection is frequently required to treat hormone-related symptoms and to obtain an appropriate pathological diagnosis. Low-risk PNETs in the body and the tail are ideal for minimally-invasive approaches which should be tailored to the individual patient. Generally, surgeons must aim for parenchyma sparing in these cases. In high-risk and malignant PNENs, indications for tumor resection are much wider than for pancreatic adenocarcinoma, in many cases due to the relatively benign tumor biology. Thus, patients with locally advanced and metastatic PNETs may benefit from extensive resection. In experienced hands, even multi-organ resections are accomplished with acceptable perioperative morbidity and mortality rates and are associated with excellent long term survival. However, poorly differentiated neoplasms with high proliferation rates are associated with a dismal prognosis and may frequently only be treated with chemotherapy. The evidence on surgical treatment of PNENs stems from reviews of mostly single-center
series and some analyses of nation-wide tumor registries. No randomized trial has been performed to compare surgical and non-surgical therapies in potentially resectable PNEN. Though such a trial would principally be desirable, ethical considerations and the heterogeneity of PNENs preclude realization of such a study. In the current review, we summarize recent advances in the surgical treatment of PNENs.