Histopathological classification as clinical outcome parameter in a large multi-centre cohort of neuroendocrine tumours from Germany

Maasberg S, Anlauf M, Pape UF, Grabowski P, Mönig H, Klose S, Lehnert H, Fottner C, Auernhammer C, Goretzki P

Introduction: Neuroendocrine tumours (NET) are a rare and heterogeneous group of epithelial neoplasm with differing malignant behaviour and varying nomenclature in the past. The German NET-registry (G-NET-Reg) collected nationwide data from NET with initial diagnosis since 1999 and analyzed influencing factors of prognosis.

Methods: The G-NET-Reg included data from histologically proven NET-patients (pts) from 28 German centres and evaluated epidemiological, histopathological and clinical parameters with regard to overall and NET-specific outcome.

Results: A total of 2009 pts (964 female) with a mean age of 56.2 years at initial diagnosis and a mean follow-up of 34.5 months included primary tumour localisation within the pancreas (n=687), ileojejunum (445), colorectum (170), stomach (130), duodenum (96), appendix (74) and others (407). 45% (910) had metastasis at initial diagnosis (extensive disease, ED) while 55% had not (limited disease, LD). 299 pts died during the observation period resulting in 1-, 2-, 5- and 10 year survival rates (YSR) of 94%, 89%, 78% and 63%. Poorly differentiated endocrine tumours (PDEC, $p < 0.001$) as well as ED ($p < 0.001$) showed poorer outcome. Surgery was the most frequent initial treatment modality associated with highly improved outcome, particularly influencing survival in LD-pts. In ED-pts Ki67-grading and distinct primary tumour localization (ileojejunum/pancreas $p=0.001$, ileojejunum/colorectum $p < 0.001$, pancreas/colorectum $p=0.016$) differed significantly in survival. Detailed analysis showed an increasing proportion of G3-NET or PDEC in subgroups with poorer survival ($p < 0.001$).

Conclusion: In this large cohort status of metastasis, WHO-classification and grading according to Ki67-index proved to be of highly significant prognostic value especially in comparison of different primary tumour localization. Therefore application of these criteria is essential for prognostic and therapeutic stratification of gastrointestinal NET.