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Effect of Metastatic Site on Survival in Patients with Neuroendocrine Neoplasms (NENs): An Analysis of SEER Data from 2010 -2014

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BACKGROUND: Neuroendocrine neoplasms (NENs) display variable behaviors based on origin and grade. We assumed that both tumor origin and the location of metastasis may play a role in survival.

METHODS: We queried the SEER database (2010 – 2014) for patients with an established diagnosis of NENs and documented site of metastasis and identified 2235 patients. Overall survival (OS) at the time points were estimated by the Kaplan-Meier method Cox proportional-hazards models were used to evaluate the relationship of the interested variables and OS.

RESULTS: Lung, liver, bone and brain metastases were observed in 9, 74, 8 and 8 percent of metastatic patients respectively. In the multivariate model, metastasis locations were significantly and independently associated with worse survival ((bone metastasis HR: 1.334 (0.964-1.848); brain HR: 1.731 (1.283-2.336); liver HR: 1.584 (1.195-2.098)). We produced a scoring system that can stratify metastatic NEN patients in low, intermediate and high-risk categories to help physicians with decision making.

CONCLUSION: Site of metastasis plays an important role in survival of metastatic NEN patients independent of commonly described prognostic factors.