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A Prospective Nordic Study on the Use of Chromogranin A for the Prediction of Progression in Patients with Pancreatic and Small Intestinal Neuroendocrine Tumors

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BACKGROUND: Retrospective studies showed that changes in plasma chromogranin A (CgA) might predict change in tumor burden in gastroenteropancreatic neuroendocrine tumor (GEP-NET) patients. The aim of this first prospective study was to compare the association between plasma CgA test results and CT as predictors for outcome in GEP-NET patients with residual disease.

METHODS: We included 239 patients with a CT followed by at least one CT 1 - 24 months later. An event was defined as CgA measured within 6 weeks of a CT. In addition, in a post-hoc analysis an event was defined as a CgA measured 3-6 month prior to the CT. Change in tumor size was defined as regression, progression, or stable disease by RECIST1.1. A 25% change in CgA discriminated between increased, unchanged or decreased plasma CgA levels. Patients were included in Denmark, Norway and Sweden from December 2010 to December 2013.

RESULTS: In the 671 events identified, there was a positive correlation between the RECIST responses and change in CgA from baseline (Spearman's rank correlation coefficient: 0.1452; p=0.0002). Of 304 events in the post-hoc analysis, 58 showed progression, 228 stable disease, and 18 regression. The median change in plasma CgA was +19(IQR:-20-(+57))%, -12(-38-(+23))% and -73(-83-(-55))%, respectively.

The overall Spearman's rank correlation coefficient was 0.17 (p= 0.003), and 0.16 (p=0.07), 0.18 (p=0.04) and 0.20 (p=0.21) for small intestinal (137 events), pancreatic (123 events) and unknown GEP primary (40 events), respectively.

CONCLUSION: In this prospective study of patients with GEP-NET and unknown primary NET an increase in plasma CgA concentration seems to predict tumor progression.