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Does Plasma Neurokinin A Predict Survival in Well-Differentiated Neuroendocrine Tumors (NETs) of the Small Bowel?

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BACKGROUND: Small bowel neuroendocrine tumors (NETs) are rare and often indolent neoplasms. Chromogranin A is the most commonly used biomarker for NETs but has a high false positive rate due to the use of proton pump inhibitors (PPIs). We currently use serial monitoring of Neurokinin A (NKA) as part of our tumor management protocol. We hypothesized that patients whose NKA levels remain elevated despite therapeutic intervention have a poor prognosis.

METHODS: Data were analyzed from patients with NETs of the small bowel, ileum, or jejunum who had serial plasma NKA values (Normal <40 pg/ml, InterScience Institute, Inglewood, CA). Survival was measured from date of the patient's first NKA level to either the date of death or the study cutoff date (June 1, 2017).

RESULTS: Serial plasma NKA values were collected in 267 patients. All patients underwent surgical cytoreduction and received other therapies as as part of standard of care. Patients were sorted into 3 groups to evaluate survival based on their NKA level. Group 1 (157/267, 59%) had NKA levels that were continuously ≤40 pg/ml. Group 2 (78/267, 29%) had NKA values that increased

transiently to >40 pg/ml but returned to ≤40 pg/ml prior to their most recent visit or date of death in response to treatment. Group 3 (32/157, 20%) had elevated NKA levels that remained >40 pg/ml until their most recent visit or date of death despite therapeutic intervention. Kaplan-Meier 2-year, 5-year, and 10-year survival rates calculated from the date of the patient's first NKA level were statistically significant between groups ($p<0.0001$) and are shown below.

CONCLUSION: Patients with small bowel NETs who have undergone surgical cytoreduction have high 2-year, 5-year, and 10-year survival rates. Serial monitoring of plasma NKA is useful in identifying patients who have a worse prognosis and can indicate to physicians that immediate therapeutic intervention is warranted.

Table 1:
Kaplan-Meier Survival by NKA Trend (n=267)

NKA Trend Group	2-year	5-year	10-year
Group 1: Normal NKA(n=157)	97%	89%	62%
Group 2: Elevated NKA that returned to normal (n=78)	99%	90%	78%
Group 3: Elevated NKA (n=32)	88%	69%	17%
p-value<0.0001			