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Vasostatin-1 (VS-1), the N-terminal fragment of Chromogranin A (CgA), is more accurate than CgA as neuroendocrine biomarker, as its plasma levels are not altered by proton pump inhibitors (PPI).

## Objective of the study

Aim of this study was to investigate several CgA-derived fragments as neuroendocrine biomarkers, comparing preoperative and postoperative plasma levels.

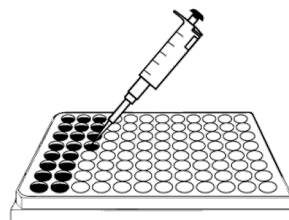


N = 35

Patients submitted to surgery for NF-PanNET

## Methods

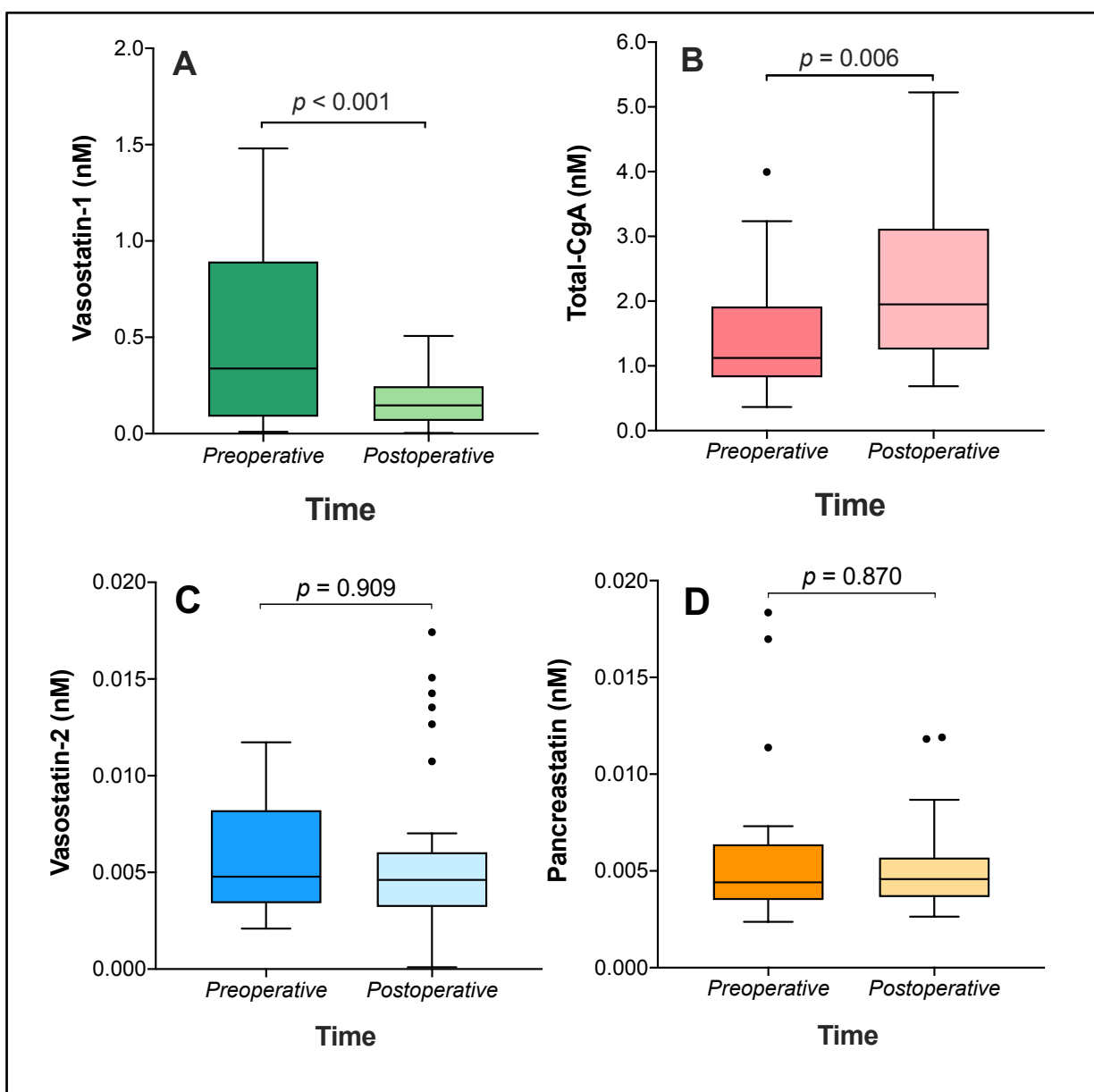
Consecutive patients who underwent surgery for NF-PanNETs at San Raffaele Scientific Institute were included (n=35). Plasma levels of CgA and CgA-derived fragments were measured, preoperatively and postoperatively.



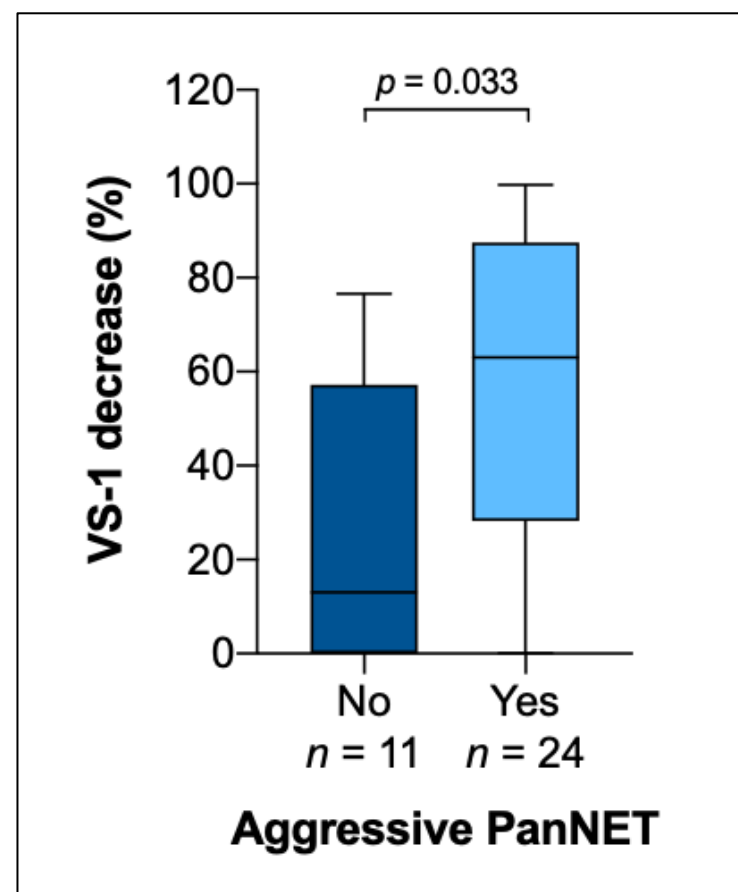
Measurement by ELISA

## Results

Preoperative VS-1 was significantly higher compared to VS-1 measured on postoperative day 5 ( $P < 0.001$ , Fig. 1A), whereas total-CgA significantly increased after surgery ( $P = 0.006$ , Fig. 1B). Overall, 24 patients showed  $\geq 1$  pathological feature of tumor aggressiveness. The median percentage decrease in VS-1 plasma levels was 63% among patients with aggressive tumors, compared to 13% in the remaining population ( $P = 0.033$ ) (Fig. 2). No significant differences in terms of VS-2 ( $P = 0.909$ , Fig. 1C) and PST ( $P = 0.870$ , Fig. 1D) were observed between preoperative and postoperative time.



**Figure 1.** Comparison between preoperative and postoperative (postoperative day 5) plasma levels of Vasostatin-1 (VS-1) (A), total-CgA (B), vasostatin-2 (VS-2) (C) and pancreastatin (PST) (D).



**Figure 2.** Comparison of VS-1 percentage decrease between patients with and without aggressive NF-PanNETs (features of aggressiveness: T3-T4 tumors, nodal/distant metastases, Ki67 >5%, microvascular and perineural invasion, necrosis).

## Conclusions

**VS-1** was able to provide an early assessment of surgical efficacy in patients who undergo resection for NF-PanNETs, especially in those with aggressive neoplasms. Total-CgA, PST and VS-2 showed no clinical utility in this setting.