

Plasma Pancreastatin Levels Predict the Outcome of Surgical Cytoreduction in Neuroendocrine Tumors of the Small Bowel

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Background

Small bowel neuroendocrine tumors (NETs) are rare and often indolent neoplasms. Pancreastatin (PST) has shown to be a reliable biomarker for small bowel NETs. Elevated PST levels have been shown to be associated with worse survival in small bowel NETs. Based on our experience, we hypothesized that elevated plasma PST following surgical cytoreduction predicts a poor prognosis in well-differentiated small bowel NETs.

Methods

Data were analyzed from patients who underwent surgical cytoreduction for NETs of the small bowel, ileum, or jejunum. All patients received standard of care following surgical cytoreduction. Only patients who had serial preoperative PST (PreopPST) and postoperative PST (PostopPST) levels were included in this study (Normal <135 pg/ml, InterScience Institute, Inglewood, Calif). Patients were sorted into groups to assess the response of their PST level to surgery. Overall survival (OS) was calculated from date of surgery to date of death or end of study (December 31, 2017).

Results

PreopPST and PostopPST levels were collected in 314 patients. Group 1 included 79 patients (25%) who had normal PreopPST and PostopPST levels. Group 2 included 87 patients (28%) with an elevated PreopPST level but a normal PostopPST level. Group 3 included 148 patients (47%) with either a normal or elevated PreopPST level and an elevated PostopPST level despite surgical cytoreduction. Patients in Groups 1 and 2 had a significant survival advantage compared to patients in Group 3 (P<0.0001). Kaplan-Meier 5-year and 10-year OS rates were as follows: Group 1 – 93% and 84%; Group 2 – 90% and 65%; and Group 3 – 59% and 34% (Table 1 & Figure 1).

Results

Figure 1. Kaplan-Meier survival stratified by pancreastatin level group (N=314).

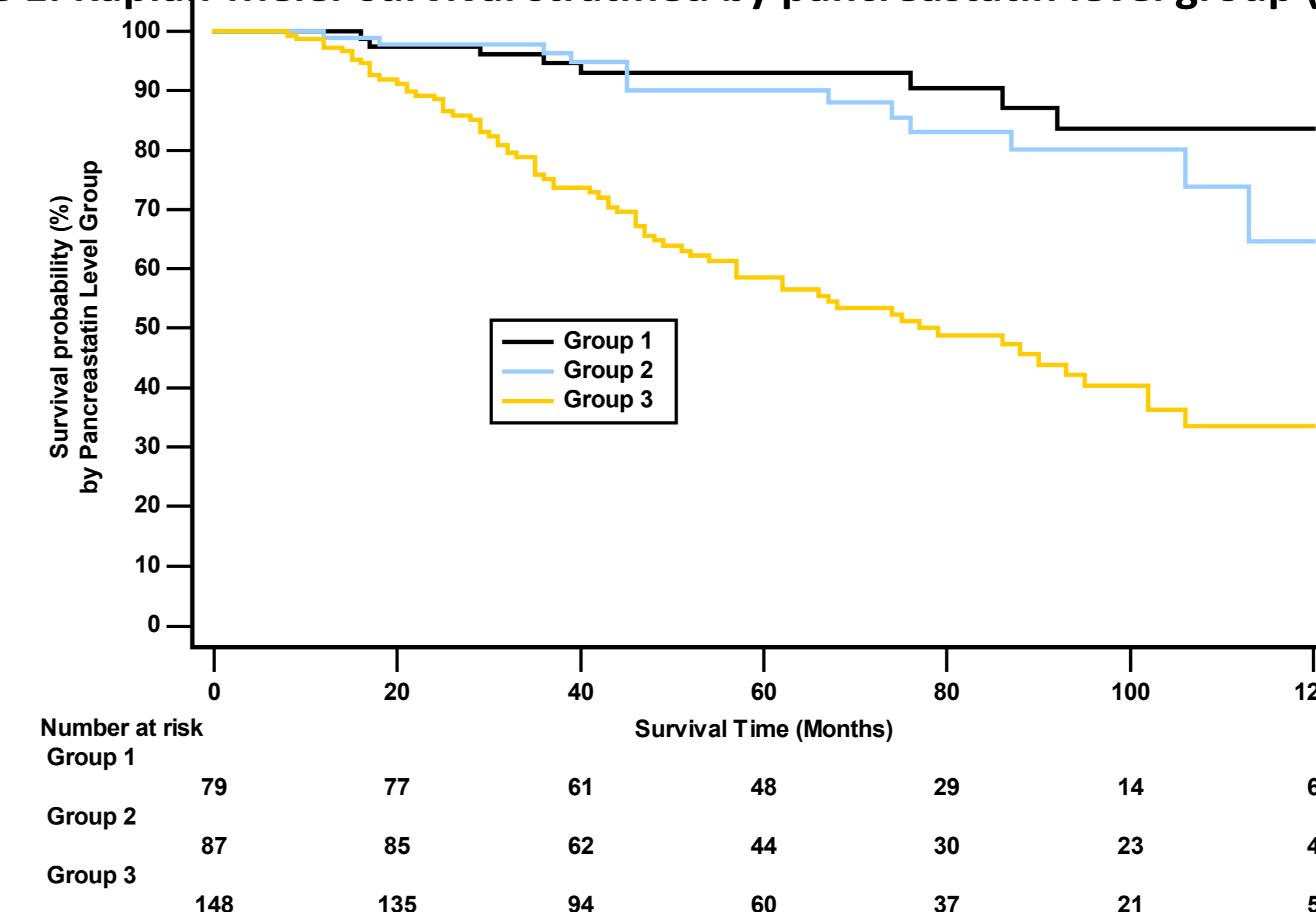


Table 1. Survival by PreopPST/PostopPST Group (N=314)

PreopPST/PostopPST Group	N	Mean OS ± SD (in months)	5-Year OS	10-Year OS
Group 1	79	125 ± 4	93%	84%
Group 2	87	117 ± 5	90%	65%
Group 3	148	78 ± 4	59%	34%

Abbreviations: PreopPST, Preoperative pancreastatin level; PostopPST, Postoperative pancreastatin level; SD, standard deviation; OS, overall survival

Conclusions

Patients with small bowel NETs who undergo surgical cytoreduction have high survival rates. Serial monitoring of plasma PST is useful in predicting long-term survival following surgical cytoreduction in and can be helpful to identify patients who have a poor prognosis.

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Background

- Small bowel neuroendocrine tumors (NETs) are rare and often indolent neoplasms. Pancreastatin (PST) has shown to be a reliable biomarker for small bowel NETs. Elevated PST levels have been shown to be associated with worse survival in small bowel NETs.
- Based on our experience, we hypothesized that elevated plasma PST following surgical cytoreduction predicts a poor prognosis in well-differentiated small bowel NETs.

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Methods

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- All patients received standard of care following surgical cytoreduction. Only patients who had serial preoperative PST (PreopPST) and postoperative PST (PostopPST) levels were included in this study (Normal <135 pg/ml, InterScience Institute, Inglewood, Calif).
- Patients were sorted into 3 groups to assess their response to surgical cytoreduction.
 - **Group 1** included patients with normal PreopPST and PostopPST levels.
 - **Group 2** included patients with an elevated PreopPST level and a normal PostopPST level.
 - **Group 3** included patients who had a normal or elevated PreopPST level and an elevated PostopPST level.
- Overall survival (OS) was calculated from date of surgery to date of death or end of study (December 31, 2017).

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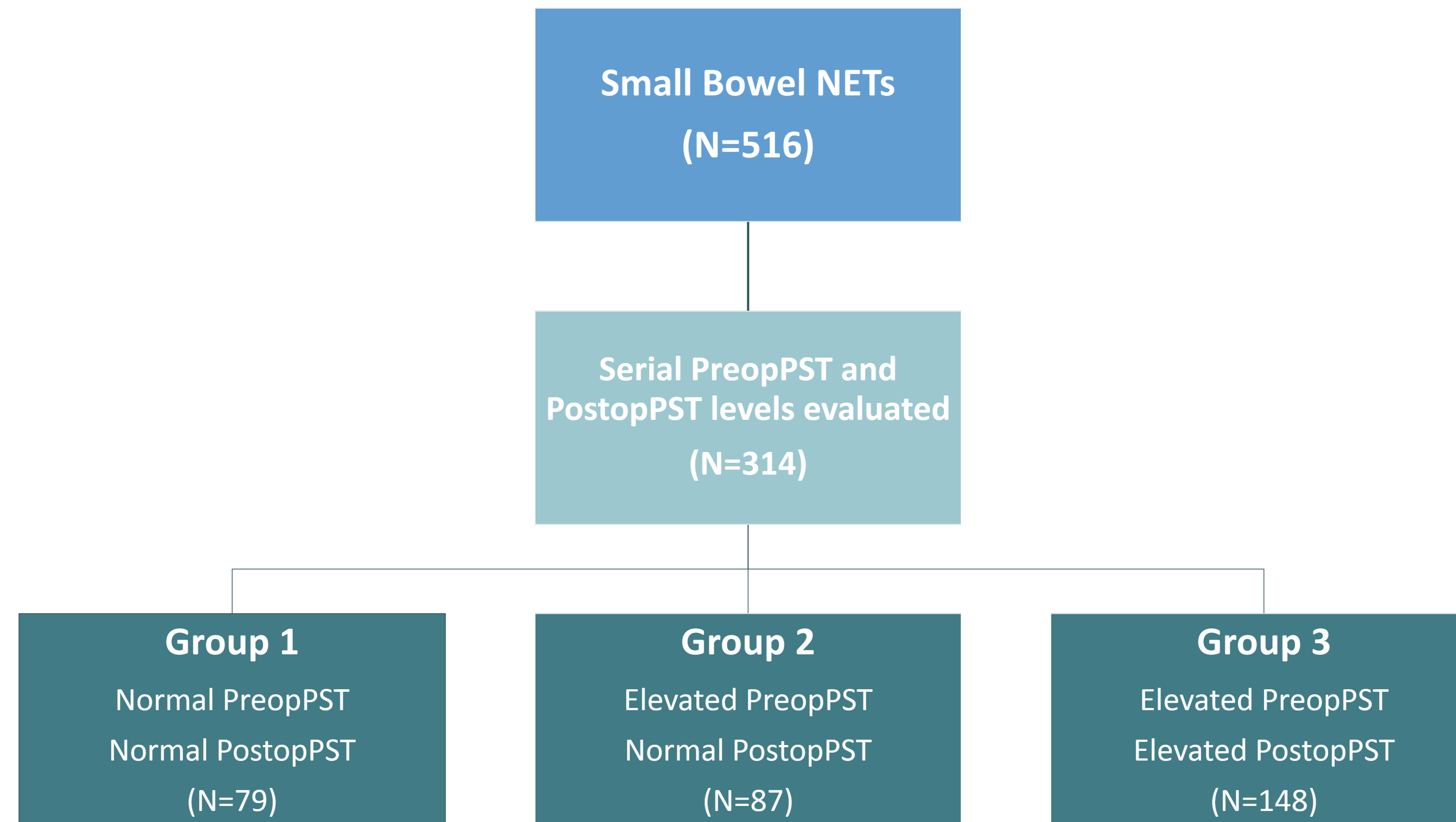
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Results

PreopPST and PostopPST levels were collected in 314 patients.



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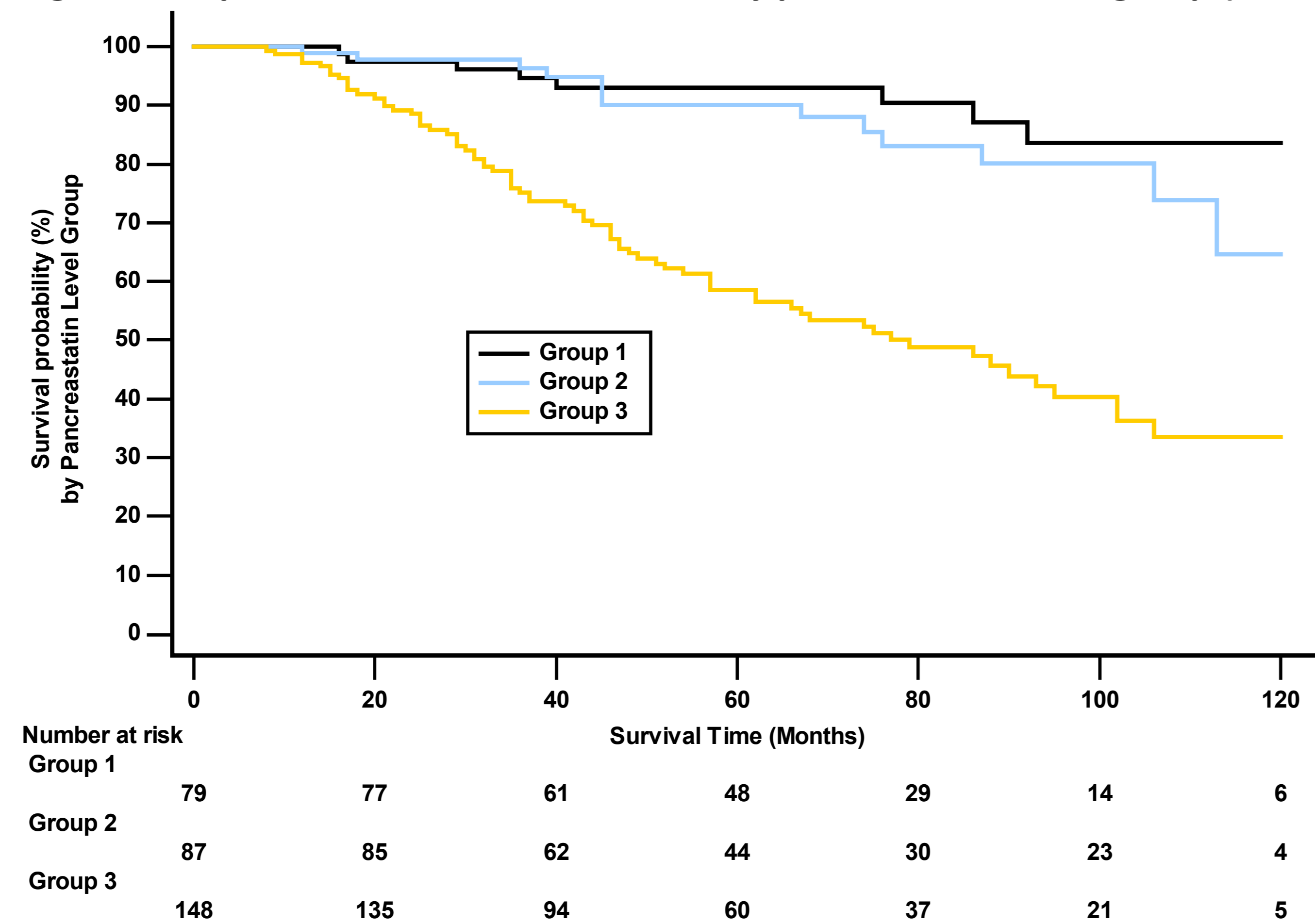
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Survival Analysis

- Patients in Groups 1 and 2 had a significant survival advantage compared to patients in Group 3 (P < 0.0001).
- Kaplan-Meier 5-year and 10-year OS rates were as follows: Group 1 – 93% and 84%; Group 2 – 90% and 65%; and Group 3 – 59% and 34% (Table 1).

Figure 1. Kaplan-Meier survival stratified by pancreastatin level group (N=314).



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CONCLUSIONS

- Patients with small bowel NETs who undergo surgical cytoreduction have high survival rates.
- Serial monitoring of plasma PST is useful in predicting long-term survival following surgical cytoreduction in and can be helpful to identify patients who have a poor prognosis.

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