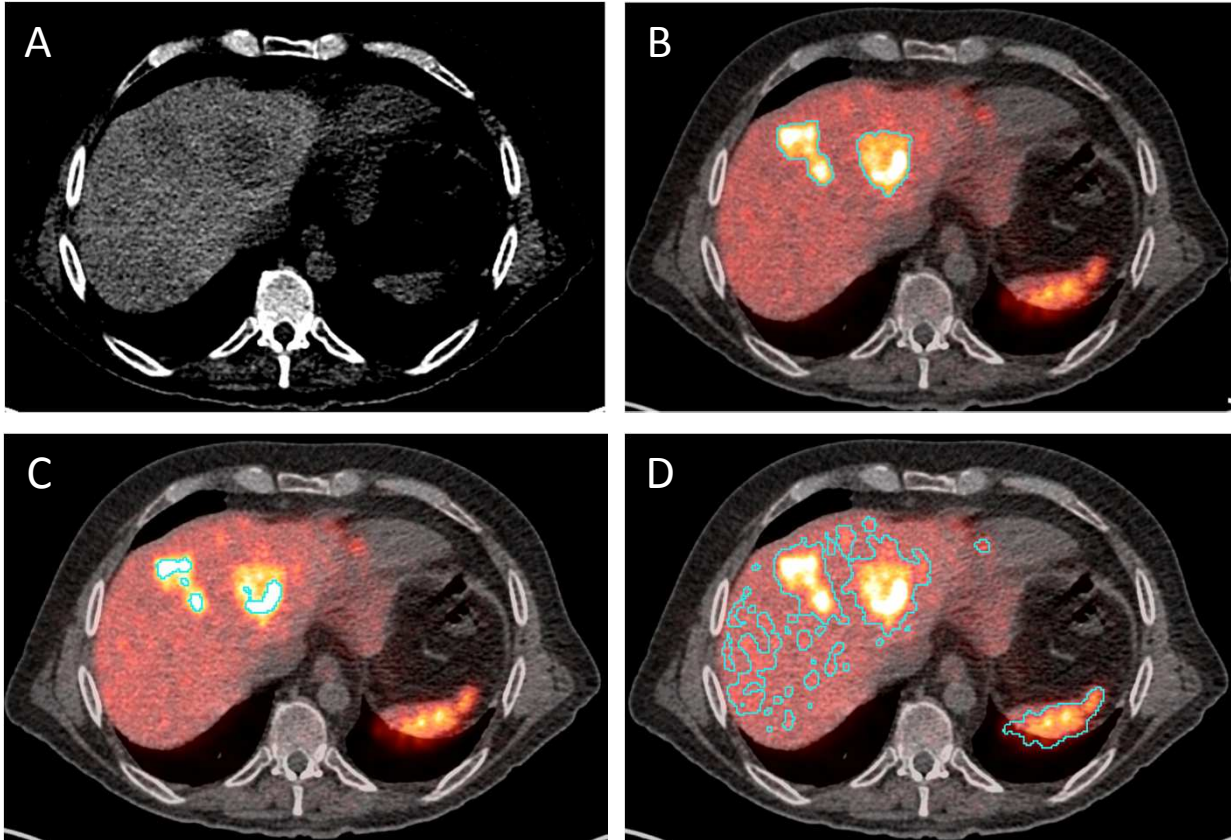
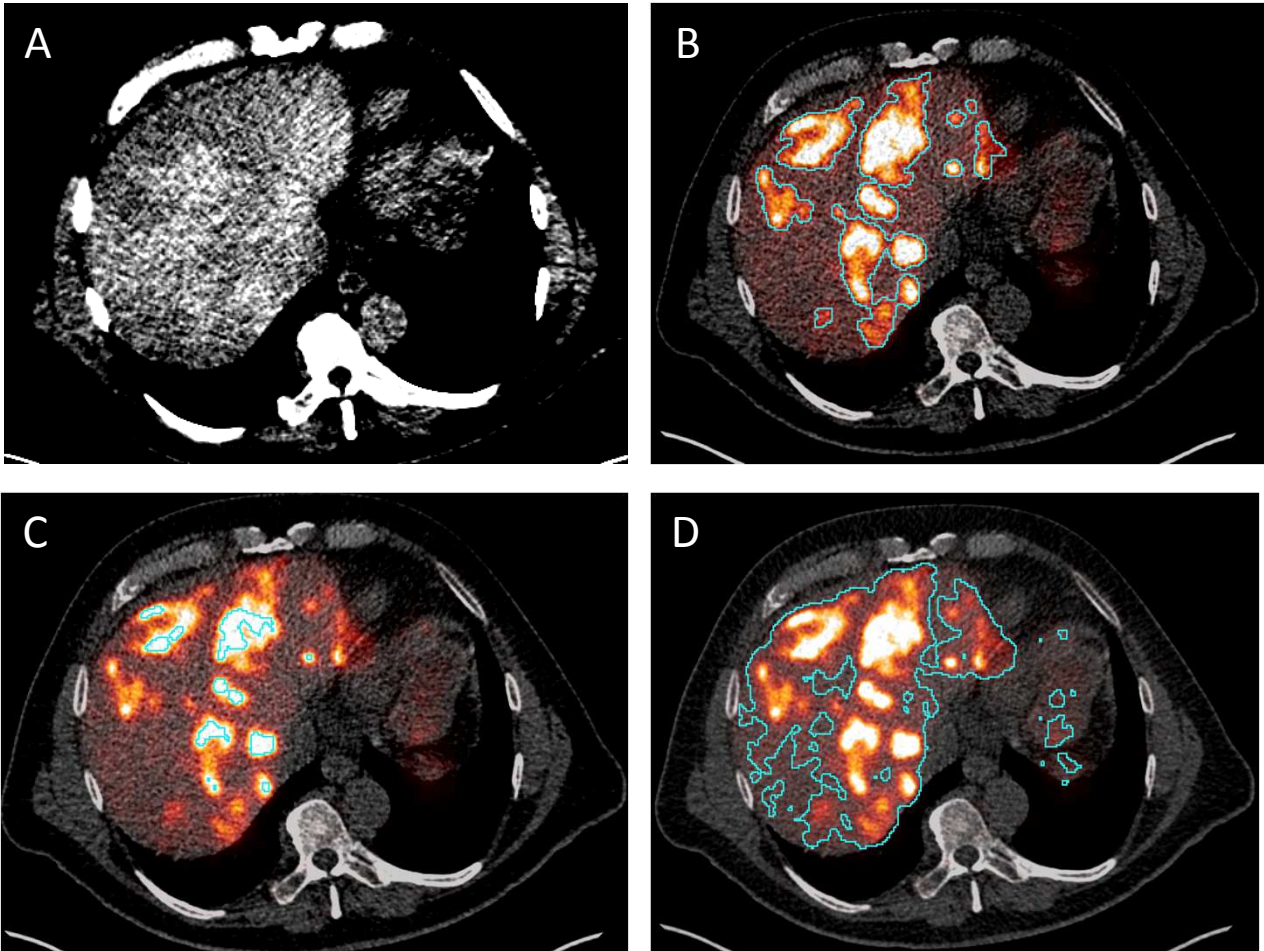


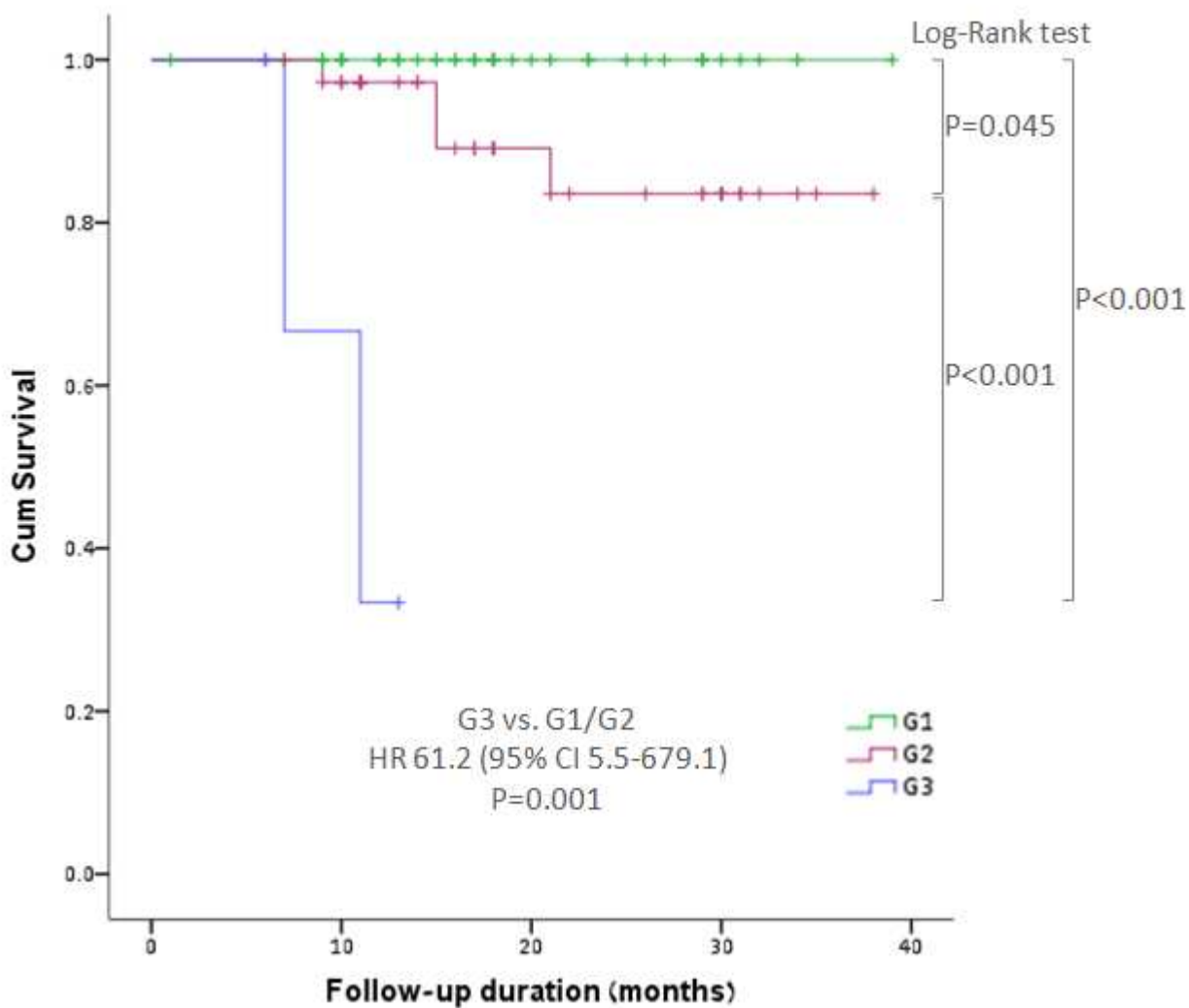
Supplementary Figure 1 Representative images of neuroendocrine liver metastases in a non-contrast, low-attenuation CT scan (A), with lesion delineated on a ^{68}Ga -DOTATATE PET/CT fusion transverse image, using SUVmax of 12 as threshold (B), higher SUVmax threshold leading to partial delineation of the lesions (C), and lower SUVmax threshold leading to overrepresentation of background physiologic ^{68}Ga -DOTATATE avidity (D). Blue line marks the segmentation for volumetric measurements. In this case, (B) was used for volumetric measurement to avoid incomplete segmentation of pathologic avidity and inclusion of high background physiologic uptake.



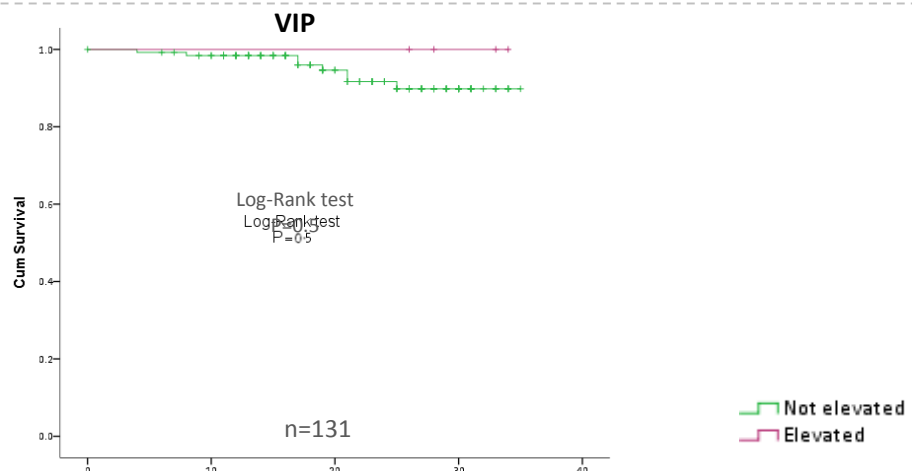
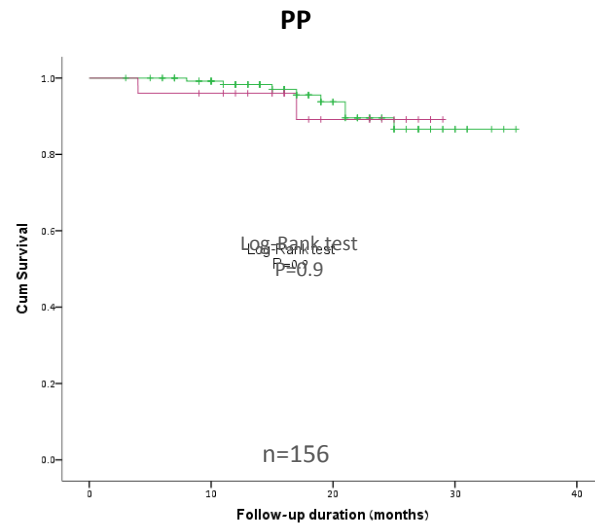
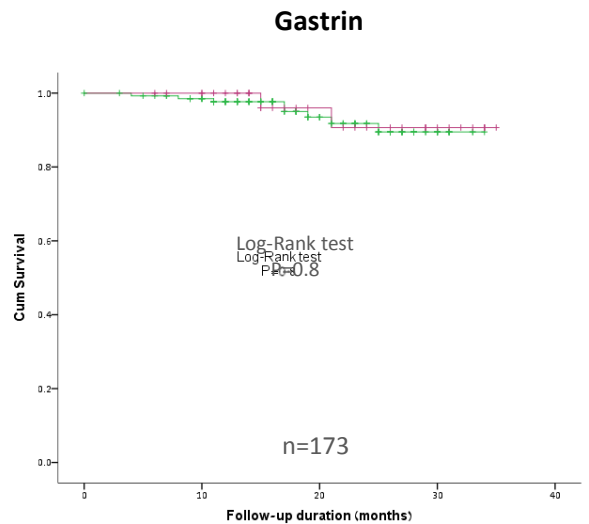
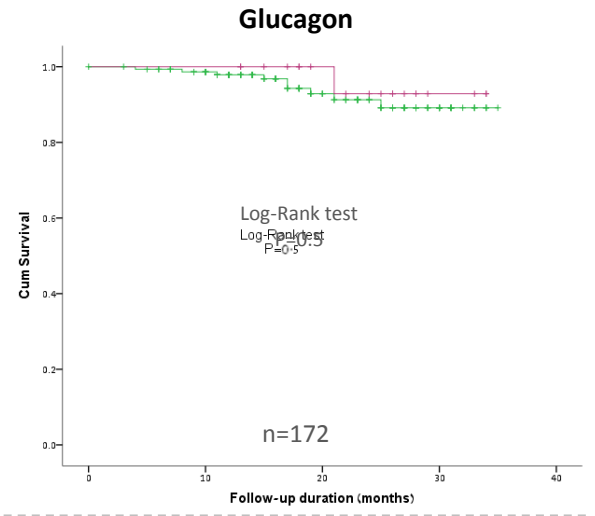
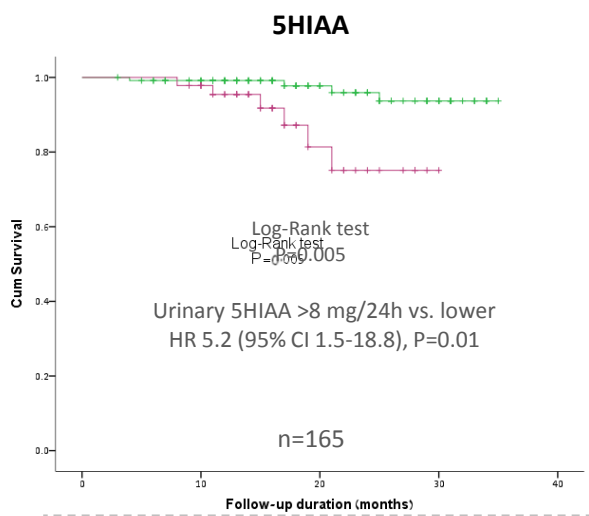
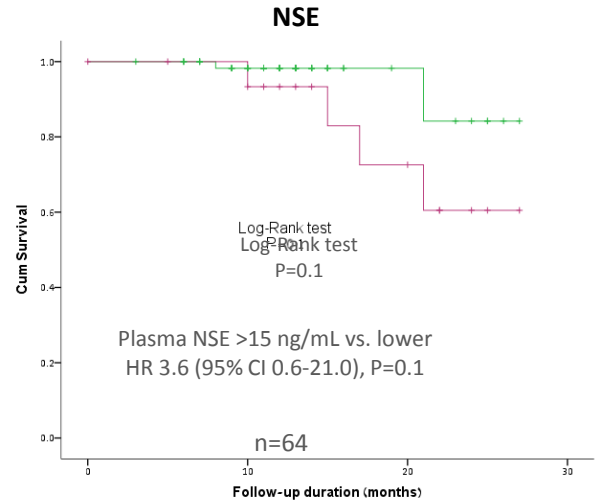
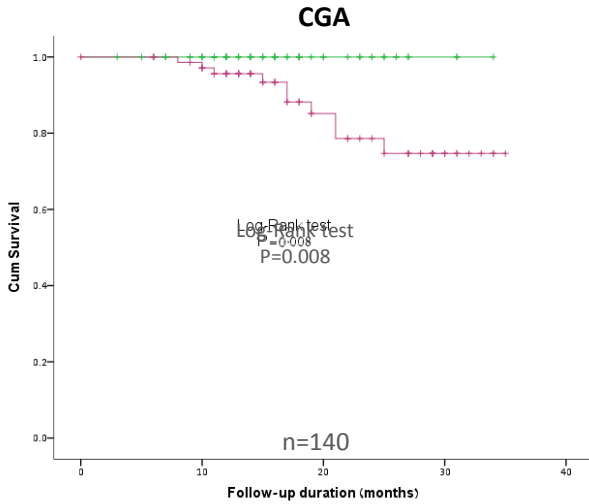
Supplementary Figure 2 Representative image of diffuse neuroendocrine liver metastases in a non-contrast, low-attenuation CT scan (A), lesions delineated on a ^{68}Ga -DOTATATE PET/CT fusion transverse image, using SUVmax of 15 as threshold (B), higher SUVmax threshold leading to partial delineation of the lesions (C), and lower SUVmax threshold leading to overrepresentation of the background physiologic ^{68}Ga -DOTATATE avidity in the liver and stomach (D). Blue line marks the segmentation for volumetric measurements. In this case, (B) was used for volumetric measurement to avoid incomplete segmentation of pathologic avidity and inclusion of high background physiologic uptake.



Supplementary Figure 3 Kaplan-Meier survival analysis of patients with neuroendocrine tumors by tumor grade. HR, hazard ratio; CI, confidence interval.

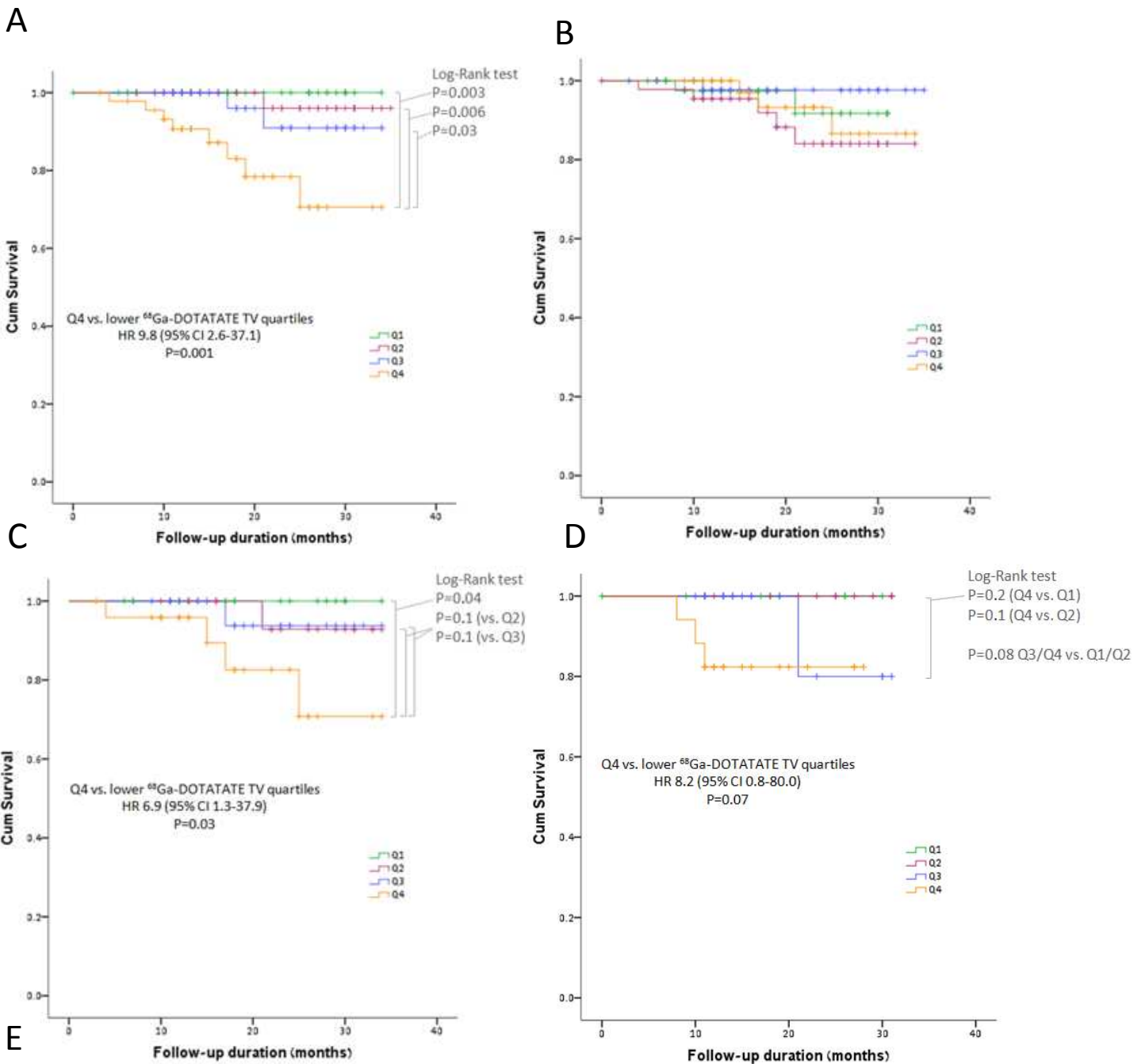


biochemical biomarker levels. 5HIAA, 24-hour urinary 5-hydroxyindoleacetic acid collection (reference-range upper limit, 8 mg/24h); CGA, plasma chromogranin A levels (73 ng/mL); NSE, plasma neuron-specific enolase levels (15 ng/mL); PP, plasma pancreatic polypeptide levels (270 pg/mL); VIP, plasma vasoactive intestinal peptide levels (75 pg/mL); gastrin, plasma gastrin levels (100 pg/mL); glucagon, plasma glucagon levels (80 pg/mL); HR, hazard ratio; CI, confidence interval



Supplementary Figure 5 Survival analysis in patients with neuroendocrine tumors. Kaplan-Meier survival analysis by ^{68}Ga -DOTATATE-avid tumor volume (n=184, A) and SUVmax quartiles (B); by total ^{68}Ga -DOTATATE-avid tumor volume quartiles among patients with pancreatic (n=99, C) and small-intestine neuroendocrine tumors (n=57, D).

SUVmax, maximum standardized uptake value. Q1: quartile 1, Q2: quartile 2, Q3: quartile 3, Q4: quartile 4.



Supplementary Table 1 Multivariable Cox proportional hazard model for the risk of disease-specific mortality during follow-up after controlling for covariates

Variable	HR	95% CI		P value
⁶⁸ Ga-DOTATATE TV \geq 35.8 mL	10.6	1.6	68.9	0.01
Liver metastases	3.5	0.3	40.8	0.3
Lymph-node metastases	3.3	0.6	19.7	0.2
Bone metastases	1.4	0.3	7.5	0.7
Lung metastases	0.4	0.03	5.2	0.5
PNET vs. Other primary location	1.9	0.4	10.1	0.5
Medical treatment after inclusion	0.3	0.06	1.5	0.1
Surgical intervention after inclusion	0.2	0.03	1.9	0.2
PRRT or liver-directed therapy after inclusion	0.4	0.04	2.8	0.3
WHO tumor grade 3 vs. 1/2	7.7	0.6	103.0	0.3
Hereditary syndrome	0.7	0.1	5.3	0.8
Functional tumor	1.8	0.3	11.3	0.5

HR, hazard ratio; CI, confidence interval; ⁶⁸Ga-DOTATATE TV, ⁶⁸Ga-DOTATATE-avid tumor volume; PNET, pancreatic neuroendocrine tumor; PRRT, peptide-receptor radionuclide therapy; WHO, world health organization

Supplementary Table 2 Multivariable Cox proportional hazard model for the risk for progression-free during follow-up after controlling for covariates

Variable	HR	95% CI		p value
⁶⁸ Ga-DOTATATE TV \geq 7.0 mL	3.0	1.1	8.7	0.04
Liver metastases	1.3	0.6	2.9	0.6
Lymph-node metastases	1.4	0.7	2.6	0.4
Bone metastases	1.9	0.9	3.6	0.08
Lung metastases	0.8	0.2	2.5	0.7
WHO tumor grade 3 vs. 1/2	2.5	0.3	25	0.4
Hereditary syndrome	1.0	0.4	2.6	0.9
Number of scans	0.8	0.7	1.0	0.1

HR, hazard ratio; CI, confidence interval; ⁶⁸Ga-DOTATATE TV, ⁶⁸Ga-DOTATATE-avid tumor volume; PNET, pancreatic neuroendocrine tumor; WHO, world health organization

* No interaction was found for medical treatment, peptide-receptor radionuclide therapy or liver directed therapy and with ⁶⁸Ga-DOTATATE TV (p=0.1)