Supplemental Data

Supplemental Table 1: Individual administered activities

Patient	Number of Cycles	Activity 1st Cycle [MBq]	Activity 2nd Cycle [MBq]	Activity 3rd Cycle [MBq]	Activity 4th Cycle [MBq]	Cumulative Activity administered [GBq]
P1	4	7120	7600	7591	7532	29.8
P2	4	7382	7669	7400	7400	29.9
P3	4	7600	7542	7500	7382	30.0
P4	4	7400	6000	7426	7504	28.3
P5	2	7451	7490	-	-	14.9
P6	4	7422	7461	7400	7402	29.7
P7	4	7403	7540	7451	7402	29.8
P8	3	7359	7505	7416	-	22.3
P9	4	7470	7428	7484	7524	29.9
P10	4	7395	7468	7514	7700	30.1
P11	4	7486	7370	7444	7339	29.6
P12	3	7500	7471	7448	-	22.4
P13	1	7457	-	-	-	7.5

Patient 5 passed away after the second treatment cycle of unknown cause, patient 8 passed away after the third treatment cycle due to progressive disease and patient 13 passed away after the first treatment cycle of heart failure. Patient 12 refused to receive a fourth cycle.

Supplemental Table 2: Adverse events: Hematotoxicity

Adverse event	Grade 1	Grade 2	Grade 3	Grade 4	Any Grade
Anemia	76.9 % (10/13)* (<LLN – 100 g/L)	46.2 % (6/13) (<100 – 80 g/L)	7.7 % (1/13) (<80 g/L)	- (Life-threatening)	84.6 % (11/13)
Thrombocytopenia	38.5 % (5/13) (<LLN – 75/nl)	30.8 % (4/13) (<75 – 50/nl)	15.4 % (2/13) (<50 – 25/nl)	- (< 25/nl)	46.2 % (6/13)
Leucocytopenia	46.2 % (6/13) (<LLN – 3/nl†)	- (<3 – 2/nl)	- (<2 – 1/nl)	- (<1/nl)	46.2 % (6/13)
Lymphocytopenia	53.8 % (7/13) (<LLN – 0.8/nl)	84.6 % (11/13) (<0.8 – 0.5/nl)	38.5 % (5/13) (<0.5 – 0.2/nl)	7.7 % (1/13) (<0.2/nl)	84.6 % (11/13)

**: 2 patients already had first-grade anemia before PRRT*

†: if LLN was 3/nl or less, grade 1 leucopenia was defined as 4-3/nl

Percentages of patients with mostly transient hematotoxicity (absolute number of patients/entire cohort). The definition for each specific grade according to CTCAE v. 5.0 is shown below the specific values (*1*). Some patients showed more than one grade of the specific adverse event. LLN = lower limit of normal

Supplemental Table 3: Adverse events: Hepatotoxicity

Adverse event	Grade 1	Grade 2	Grade 3	Grade 4	Any Grade
GGT increase (Gamma-glutamyltransferase)	38.5 % (5/13) (>ULN – 2.5 x ULN[*])	23.1 % (3/13) (>2.5 – 5.0 x ULN[†])	- (>5.0 – 20.0 x ULN[‡])	- (>20.0 x ULN[§])	46.2 % (6/13)
AST increase (Aspartate aminotransferase)	23.1 % (3/13) (>ULN – 3.0 x ULN[‖])	- (>3.0 – 5.0 x ULN[¶])	- (> 5.0 – 20.0 x ULN[#])	- (> 20.0 x ULN[§])	23.1 % (3/13)
ALT increase (Alanine aminotransferase)	46.2 % (6/13) (>ULN – 3.0 x ULN[‖])	- (>3.0 – 5.0 x ULN[¶])	- (> 5.0 – 20.0 x ULN[#])	- (> 20.0 x ULN[§])	46.2 % (6/13)
Hypoalbuminemia	- (<LLN – 30 g/L)	15.4 % (2/13) (<30 – 20 g/L)	- (<20 g/L)	- (Life-threatening)	15.4 % (2/13)

[*]*: if baseline was normal; 2 – 2.5 x baseline if baseline was abnormal*
[†]*: if baseline was normal; >2.5 – 5.0 x baseline if baseline was abnormal*
[‡]*: if baseline was normal; >5.0 – 20.0 x baseline if baseline was abnormal*
[§]*: if baseline was normal; 20.0 x baseline if baseline was abnormal*
[‖]*: if baseline was normal; 1.5 – 3.0 x baseline if baseline was abnormal*
[¶]*: if baseline was normal; 3.0 – 5.0 x baseline if baseline was abnormal*
[#]*: if baseline was normal; >5.0 – 20.0 x baseline if baseline was abnormal*

Percentages of patients with transient hepatotoxicity (absolute number of patients/entire cohort). The definition for each specific grade according to CTCAE v. 5.0 is shown below the specific values (*1*). Some patients showed more than one grade of the specific adverse event. ULN = upper limit of normal; LLN = lower limit of normal

Supplemental Table 4: Adverse events: Nephrotoxicity

Adverse event	Grade 1	Grade 2	Grade 3	Grade 4	Any Grade
Creatinine increase	53.8 % (7/13) (>ULN – 1.5 x ULN)	7.7 % (1/13) (>1.5 – 3.0 ULN*)	7.7 % (1/13)‡ (>3.0 – 6.0 x ULN†)	- (> 6.0 x ULN)	53.8 % (7/13)
GFR decrease (glomerular filtration rate)	76.9 % (10/13)§ (<LLN – 60 ml/min/1.73 m^2)	46.2 % (6/13)§ (59 – 30 ml/min/1.73 m^2)	- (29 – 15 ml/min/1.73 m^2)	7.7 % (1/13)‡ (<15 ml/min/1.73 m^2)	84.6 % (11/13)

**: or >1.5 – 3.0 x baseline*

†: or >3.0 x baseline

‡: associated with post-renal acute kidney injury

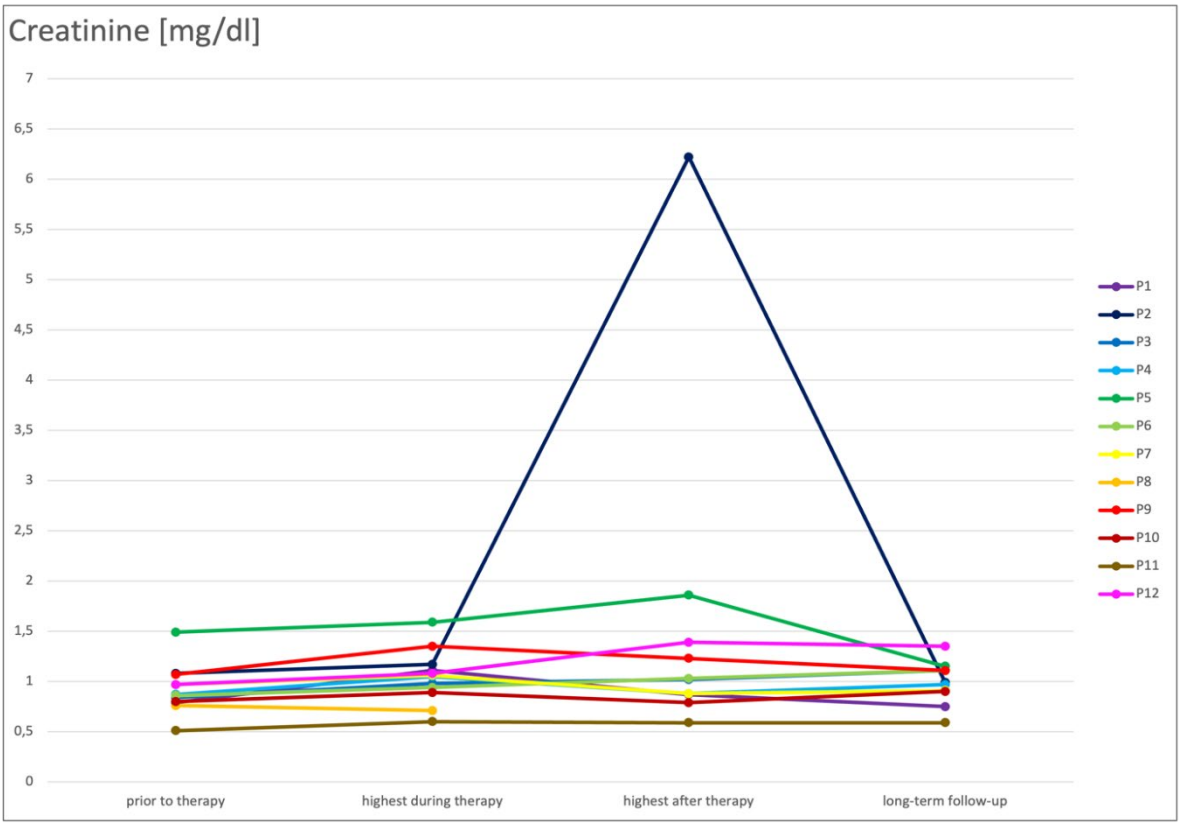
§: 9 patients already had lower grade GFR reduction before PRRT

Percentages of patients with (transient) nephrotoxicity (absolute number of patients/entire cohort). The definition for each specific grade according to CTCAE v. 5.0 is shown below the specific values (*1*). Some patients showed more than one grade of the specific adverse event. ULN = upper limit of normal; LLN = lower limit of normal

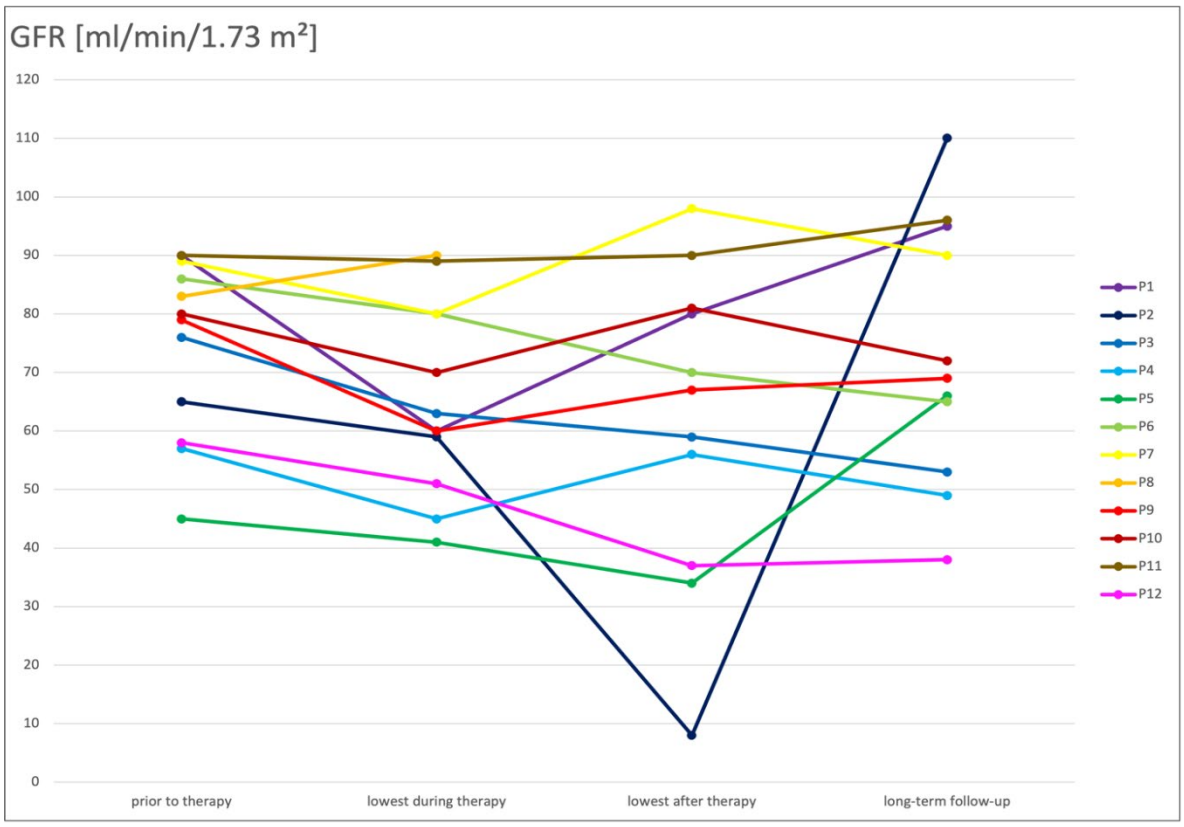
Supplemental Table 5: *Progression free survival (PFS) and overall survival (OS) according to CNS WHO grade after 6, 12, 18 and 24 months.*

Survival	**CNS WHO 1**	**CNS WHO 2**	**Unknown**	**All**
PFS (n = 13)				
PFS 6	100 % (4/4)	25 % (1/4)*	100 % (5/5)	76.9 % (10/13)
PFS 12	100 % (4/4)	25 % (1/4)*	100 % (5/5)	76.9 % (10/13)
PFS 18	75 % (3/4)	25 % (1/4)*	60 % (3/5)	53.8 % (7/13)
PFS 24	75 % (3/4)	25 % (1/4)*	40 % (2/5)	46.2 % (6/13)
Median PFS	24 months	4 months	18 months	18 months
OS (n = 13)				
OS 6	100 % (4/4)	75 % (3/4)	100 % (5/5)	92.3 % (12/13)
OS 12	100 % (4/4)	50 % (2/4)	100 % (5/5)	84.6 % (11/13)
OS 18	75 % (3/4)	50 % (2/4)	60 % (3/5)	61.5 % (8/13)
OS 24	75 % (3/4)	50 % (2/4)	40 % (2/5)	53.8 % (7/13)
Median OS	Not reached	Not reached	Not reached	Not reached

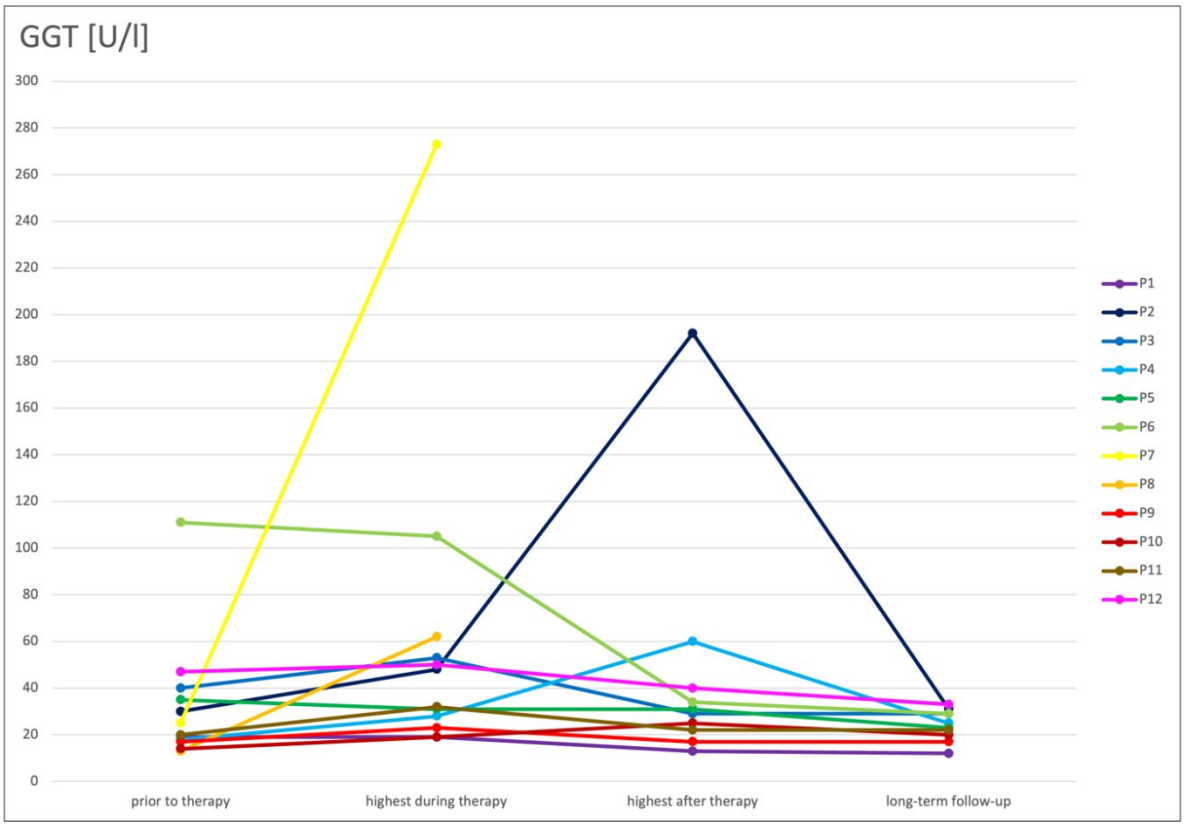
**: one patient with grade 2 meningioma passed away of heart failure; one patient with grade 2 meningioma experienced progressive frailty that could not be confirmed radiologically.*



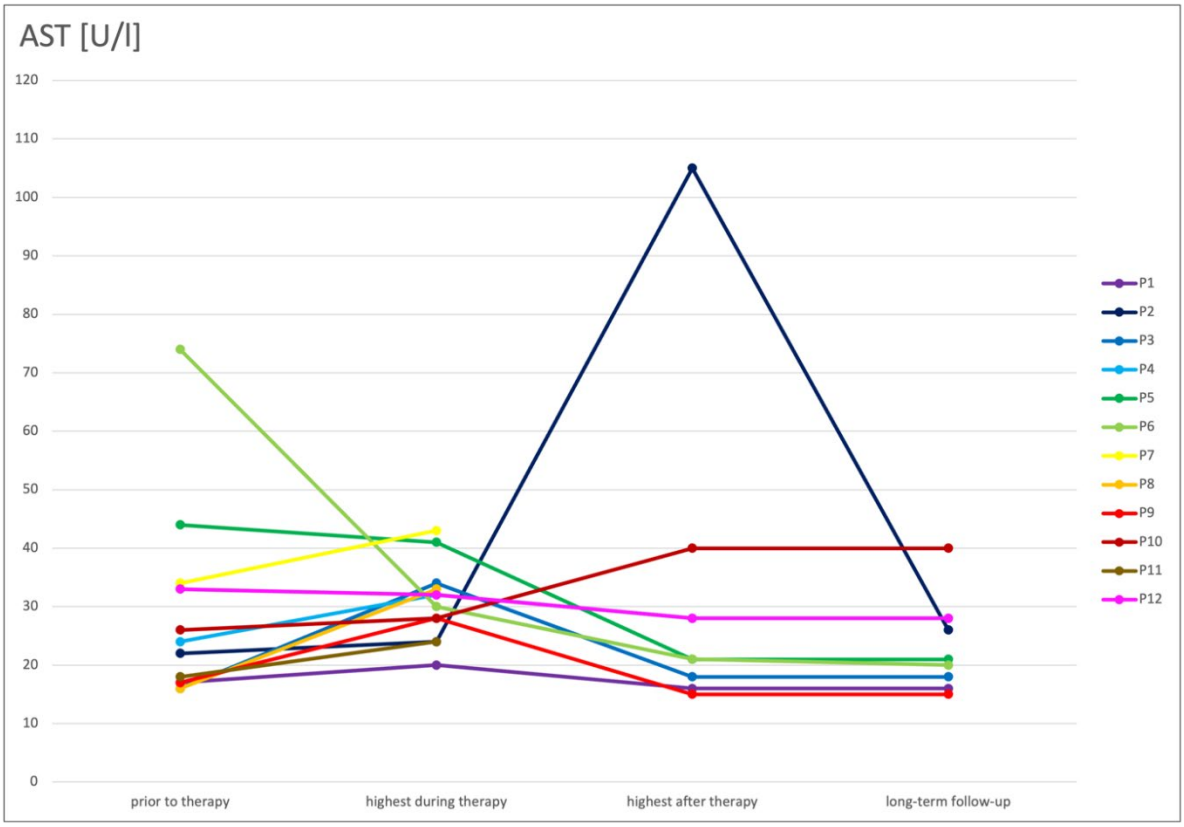
Supplemental Figure 1: *Creatinine prior to therapy, highest during and after therapy and long-term follow-up if available.*



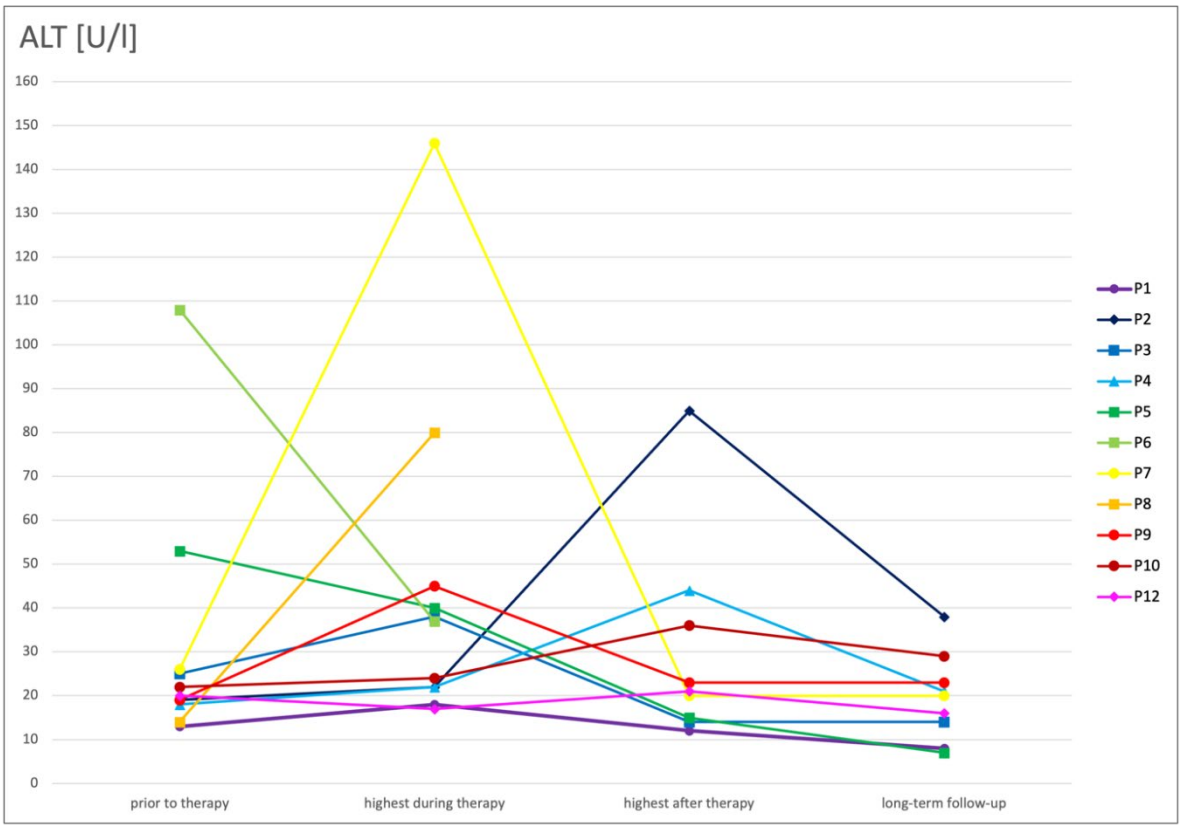
Supplemental Figure 2: *Glomerular filtration rate (GFR) prior to therapy, lowest during and after therapy and long-term follow-up if available.*



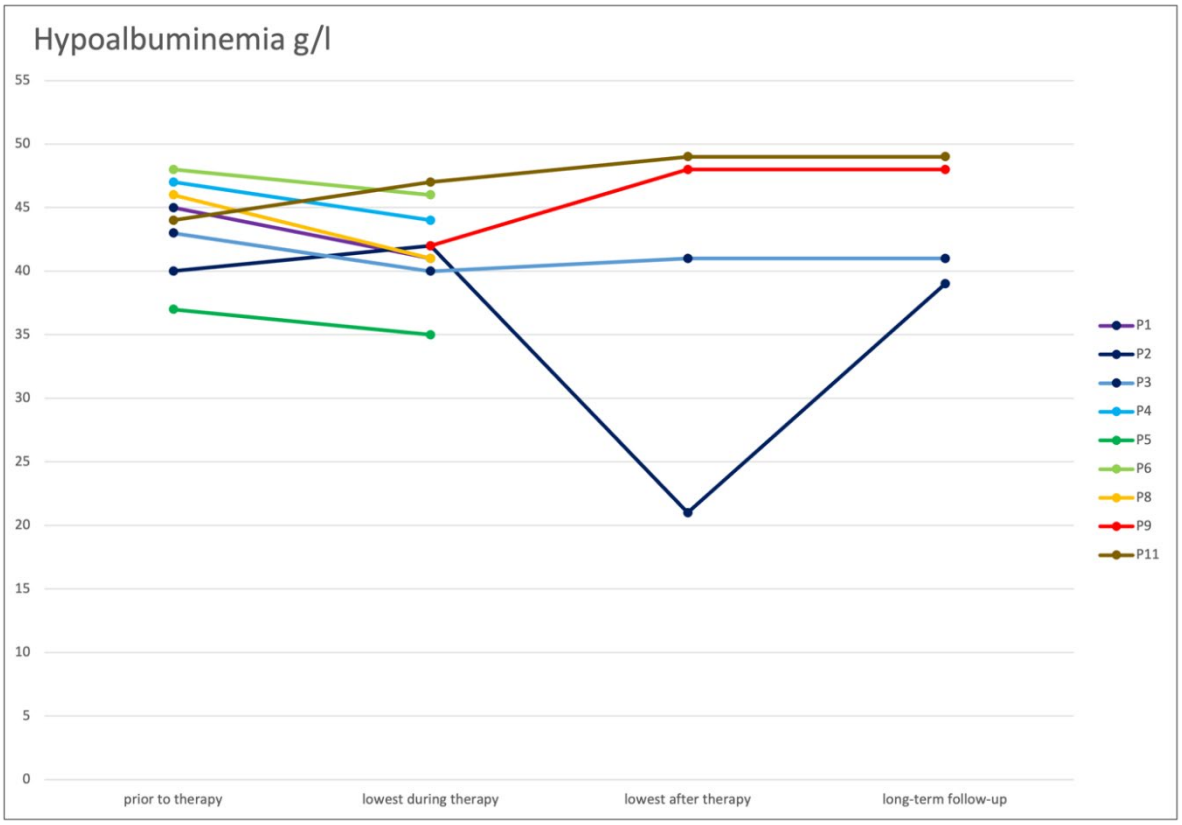
Supplemental Figure 3: *Gamma-glutamyl transferase (GGT) prior to therapy, highest during and after therapy and long-term follow-up if available.*



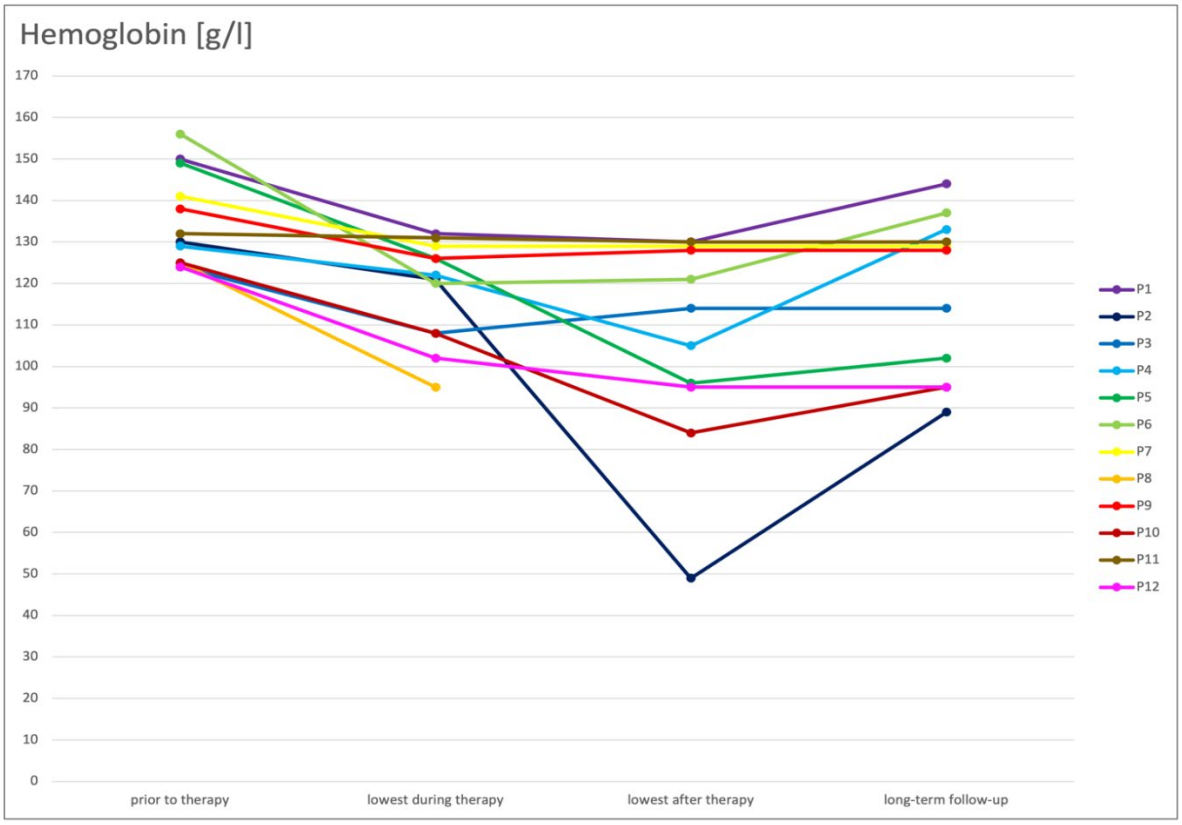
Supplemental Figure 4: *Aspartate aminotransferase (AST) prior to therapy, highest during and after therapy and long-term follow-up if available.*



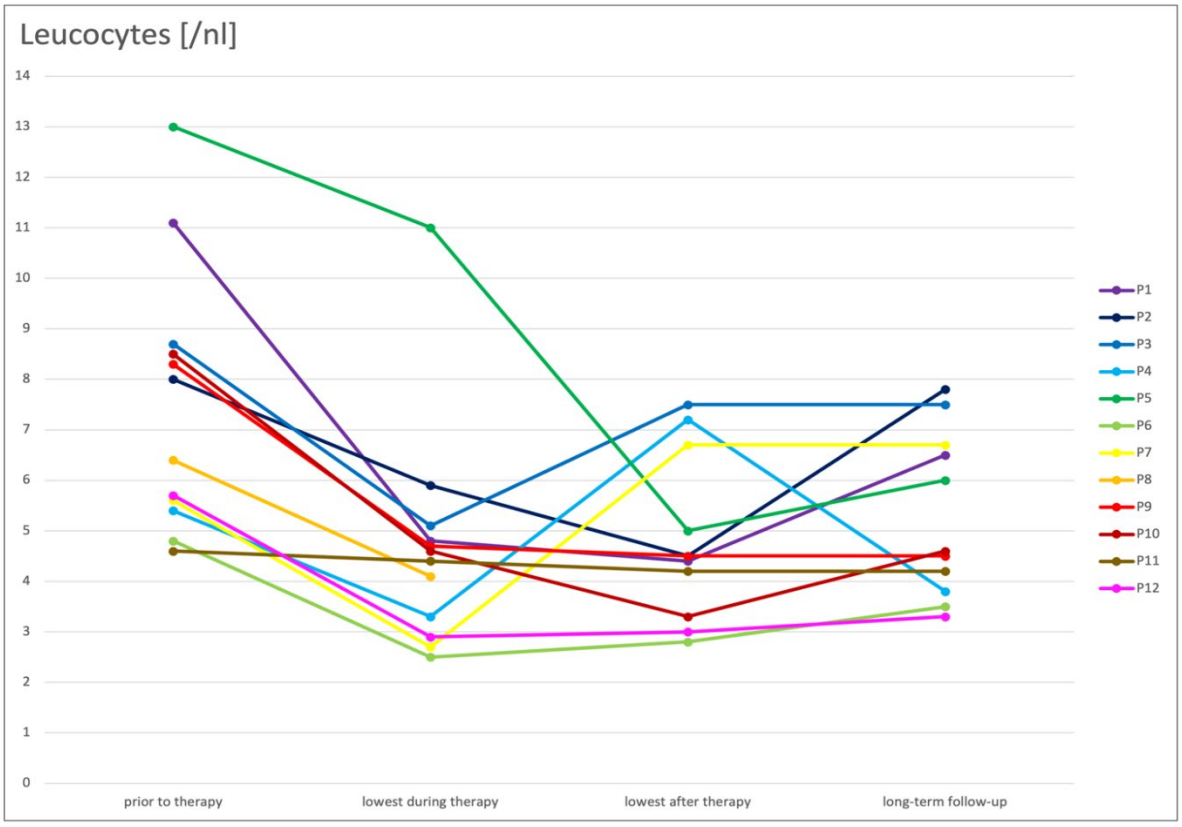
Supplemental Figure 5: *Alanine aminotransferase (ALT) prior to therapy, highest during and after therapy and long-term follow-up if available.*



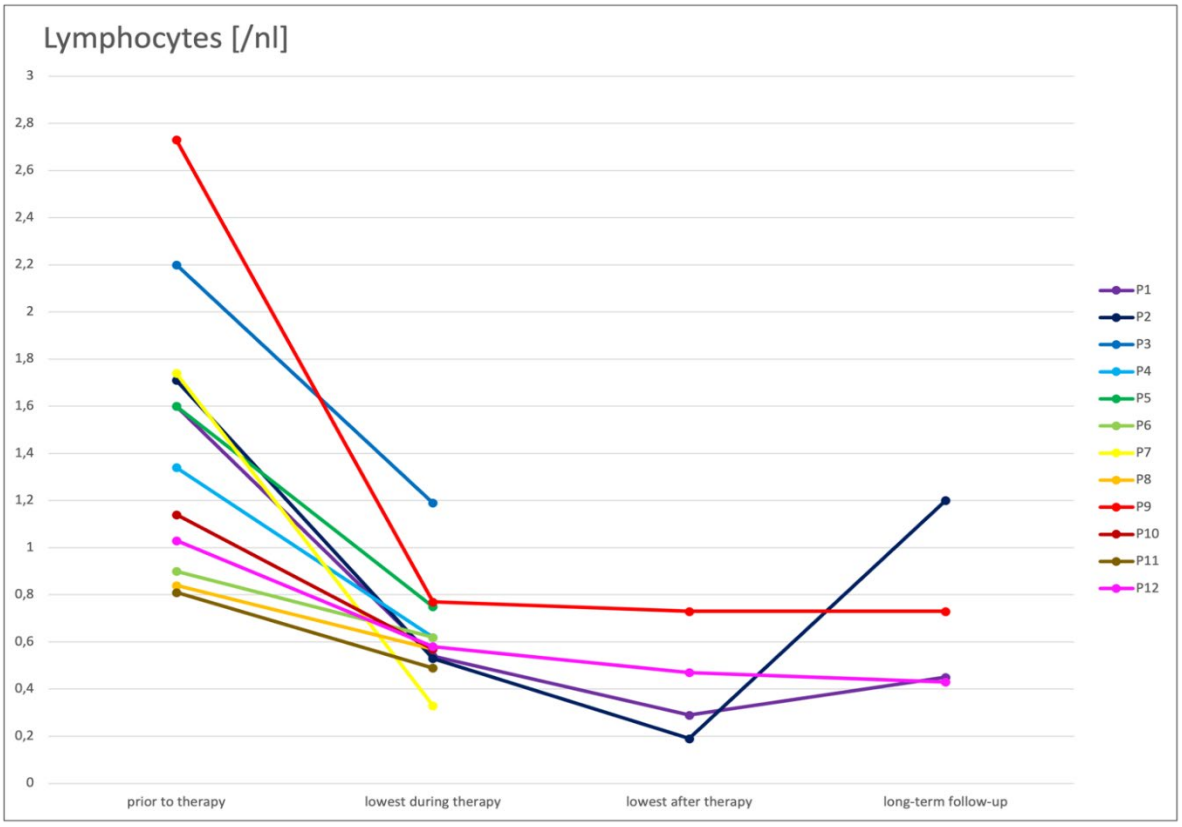
Supplemental Figure 6: *Albumin prior to therapy, lowest during and after therapy and long-term follow-up if available.*



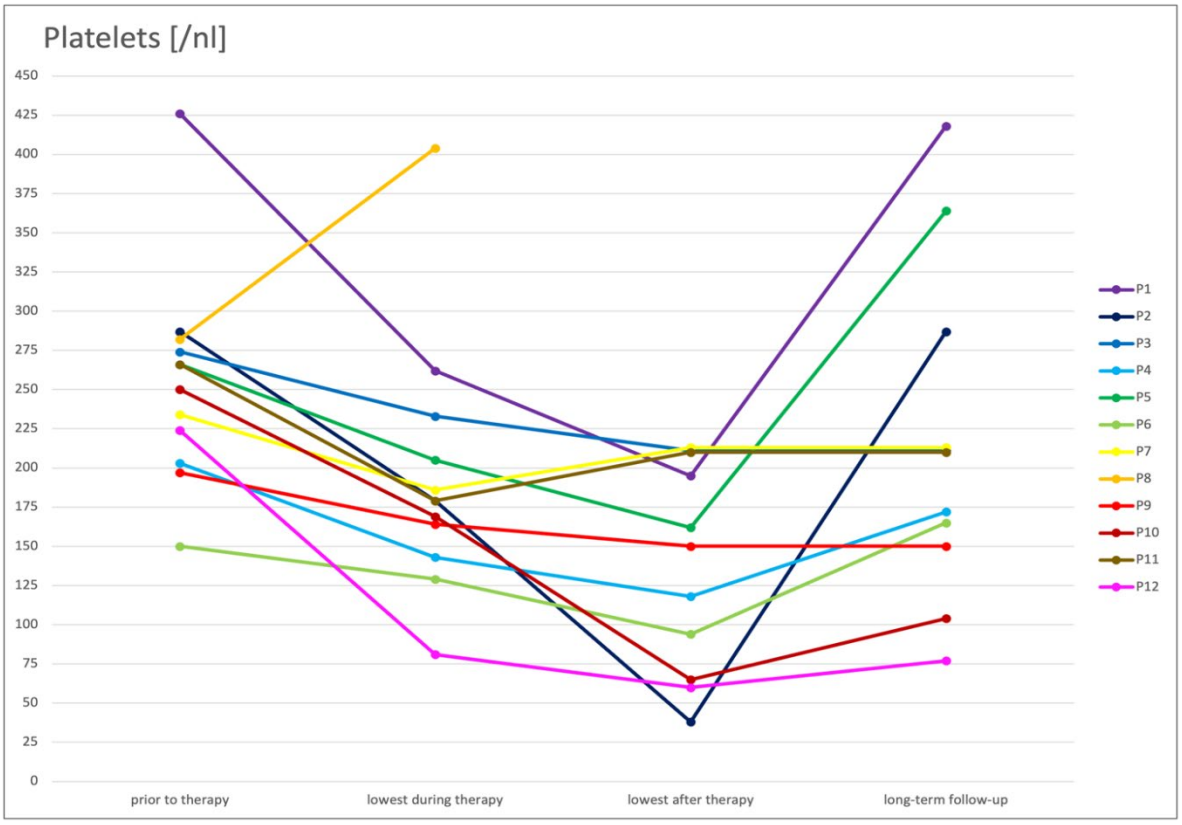
Supplemental Figure 7: *Hemoglobin prior to therapy, lowest during and after therapy and long-term follow-up if available.*



Supplemental Figure 8: *Leukocyte count prior to therapy, lowest during and after therapy and long-term follow-up if available.*



Supplemental Figure 9: *Lymphocyte count prior to therapy, lowest during and after therapy and long-term follow-up if available.*



Supplemental Figure 10: *Platelet count prior to therapy, lowest during and after therapy and long-term follow-up if available.*

References

1. US Department of Health and Services, Common Terminology Criteria for Adverse Events (CTCAE) Version 5.0. 2017.