

**Supplementary Table 1.** Multivariate analysis for OS including PEG-asparaginase dose as a continuous variable

Explanatory	HR	L95	U95	p-value
PEG-asparaginase doses as a continuous variable	0.88	0.710	1.0997	0.26777
Age_ $\geq$ 30 years vs. < 30 years	1.66	0.789	3.4810	0.18189
Cytogenetics_ Unavailable vs. Favorable	0.63	0.137	2.8811	0.55060
Cytogenetics_ Unfavorable/Intermediate vs. Favorable	0.67	0.145	3.0683	0.60412
Ph-like_ Unavailable vs. No	1.51	0.668	3.3972	0.32394
Ph-like_ Yes vs. No	2.81	1.044	7.5378	0.04073
WBC_ >30 vs. $\leq$ 30	1.71	0.812	3.5963	0.15780
BMI_ $\geq$ 30 vs. 30	1.11	0.536	2.3018	0.77757
MRD post induction_ Unavailable vs. detectable	0.78	0.336	1.8301	0.57435
MRD post induction _ Undetectable vs. detectable	0.44	0.111	1.7575	0.24610

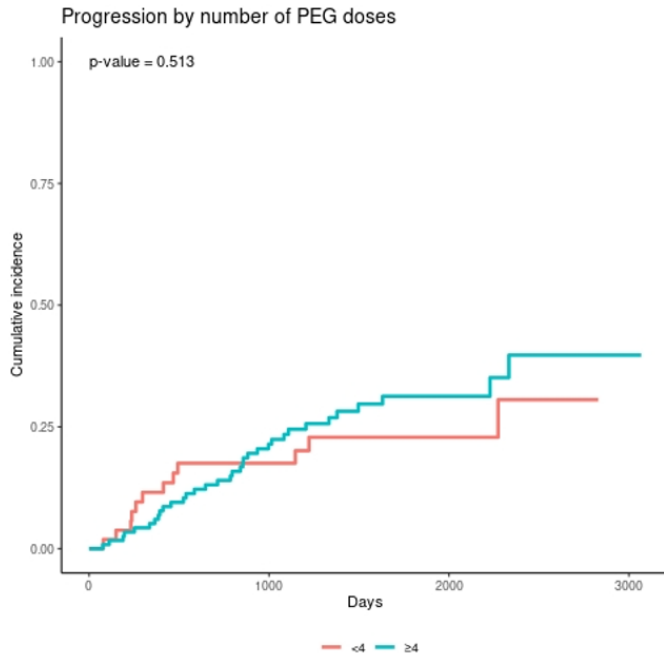
Ph-like: Philadelphia-like; WBC: white blood cell count; BMI: body mass index; MRD: measurable residual disease

**Supplementary Table 2.** Multivariate analysis for EFS including PEG-asparaginase dose as a continuous variable

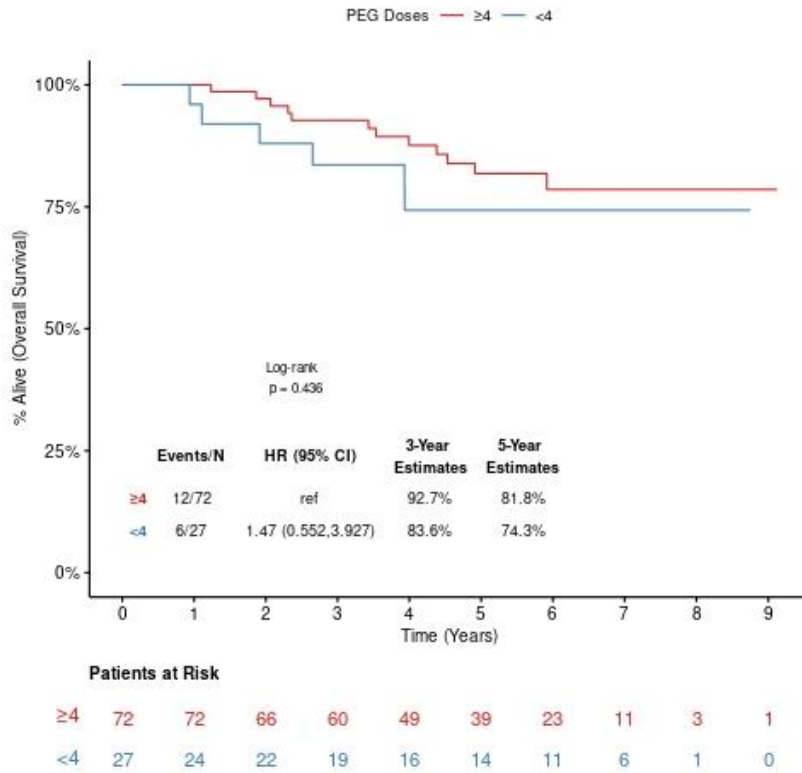
explanatory	HR	L95	U95	p-value
PEG-asparaginase doses as a continuous variable	0.97	0.811	1.1711	0.78315
Age_ $\geq$ 30 years vs. < 30 years	1.62	0.856	3.0464	0.13865
Cytogenetics_ Unavailable vs. Favorable	1.07	0.243	4.7256	0.92747
Cytogenetics_ Unfavorable/Intermediate vs. Favorable	1.00	0.227	4.3895	0.99847
Ph-like_ Unavailable vs. No	1.37	0.700	2.6665	0.36050
Ph-like_ Yes vs. No	3.42	1.518	7.7151	0.00302
WBC_ >30 vs. $\leq$ 30	1.56	0.847	2.8727	0.15400
BMI_ $\geq$ 30 vs. 30	1.19	0.646	2.1885	0.57741
MRD post induction_ Unavailable vs. detectable	0.72	0.352	1.4694	0.36575
MRD post induction _ Undetectable vs. detectable	0.41	0.127	1.3480	0.14310

Ph-like: Philadelphia-like; WBC: white blood cell count; BMI: body mass index; MRD: measurable residual disease

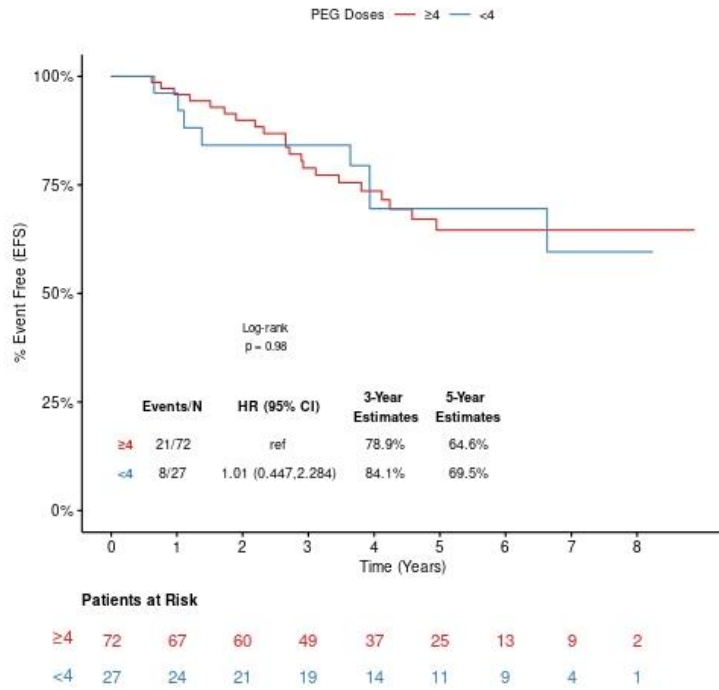
**Supplementary Figure 1.** Progression by number of PEG-asparaginase doses



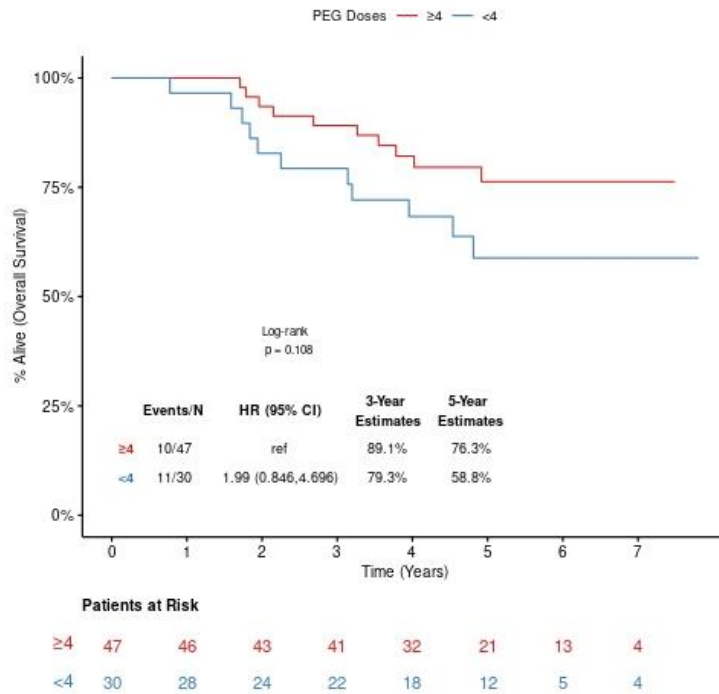
**Supplementary Figure 2A.** OS for younger patients based on number of pegasparaginase doses



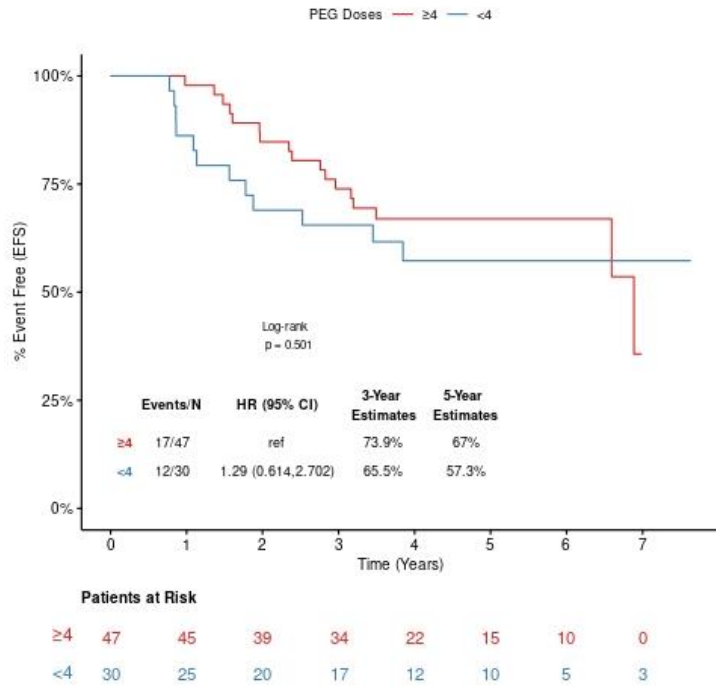
**Supplementary Figure 2B.** EFS for younger patients based on number of pegasparginase doses



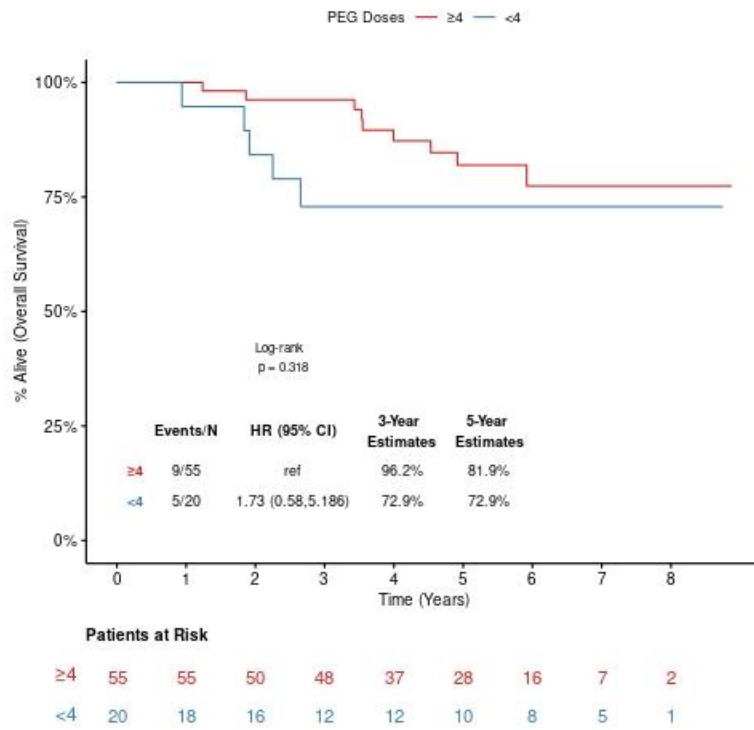
**Supplementary Figure 2C.** OS for older patients based on number of pegasparginase doses



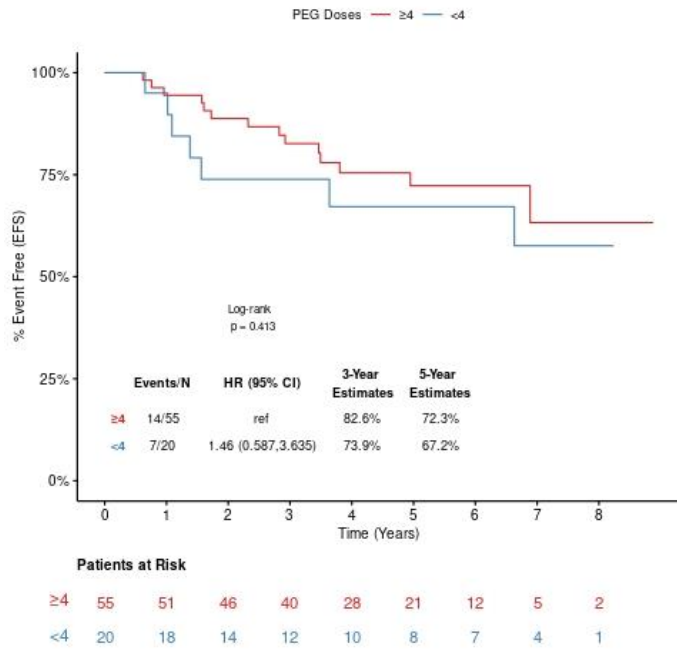
**Supplementary Figure 2D.** EFS for older patients based on number of pegasparginase doses



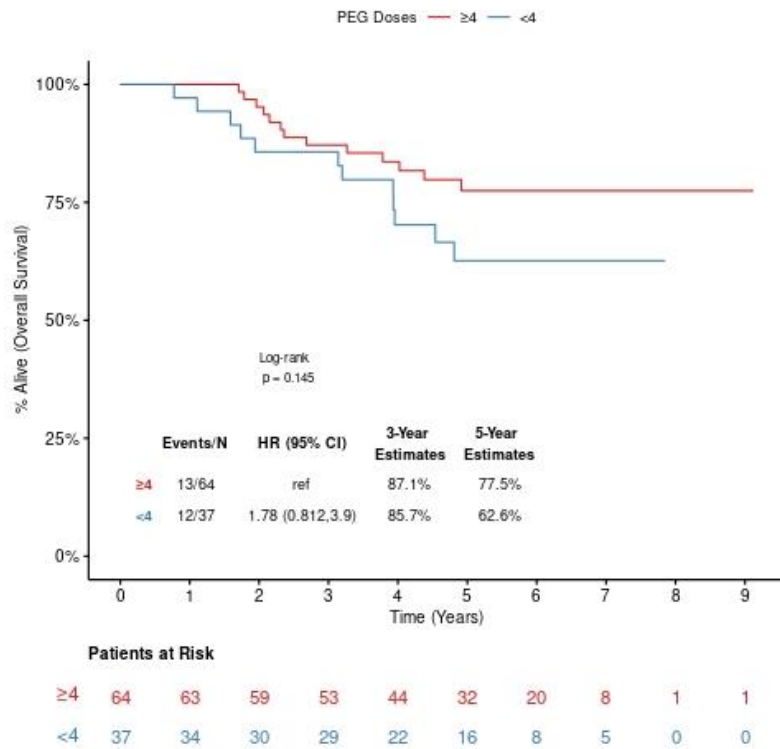
**Supplementary Figure 3A.** OS for patients with low or normal BMI based on number of pegasparginase doses



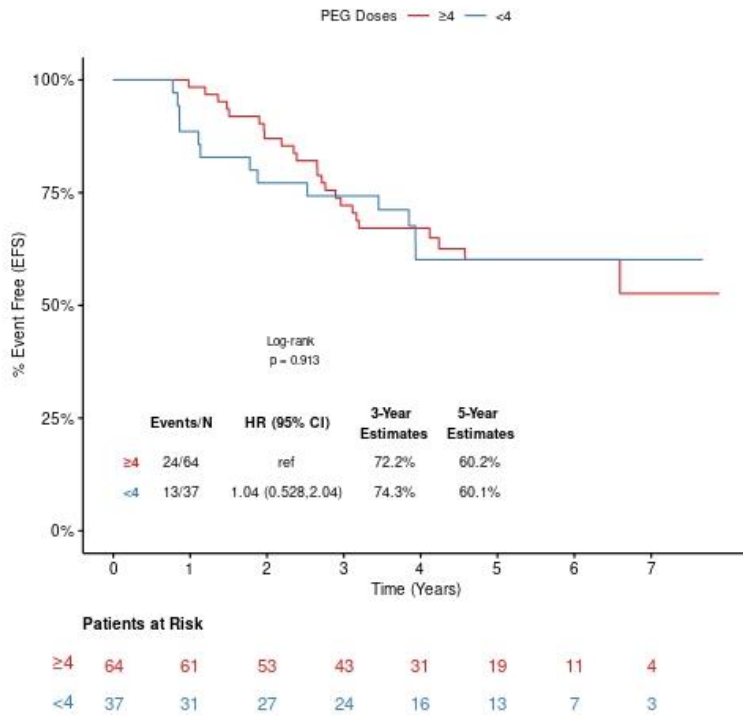
**Supplementary Figure 3B.** EFS for patients with low or normal BMI based on number of pegasparginase doses



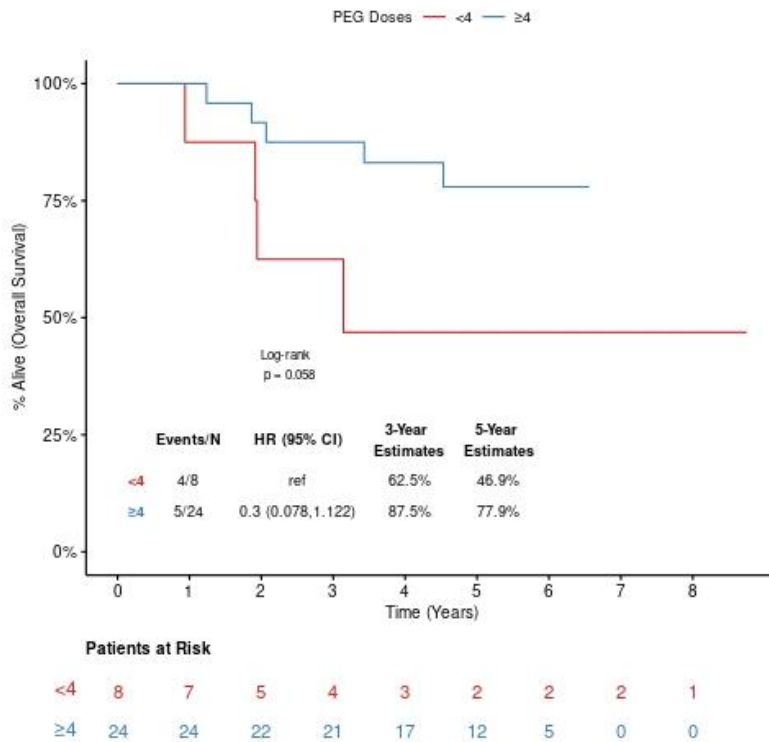
**Supplementary Figure 3C.** OS for patients with high BMI based on number of pegasparginase doses



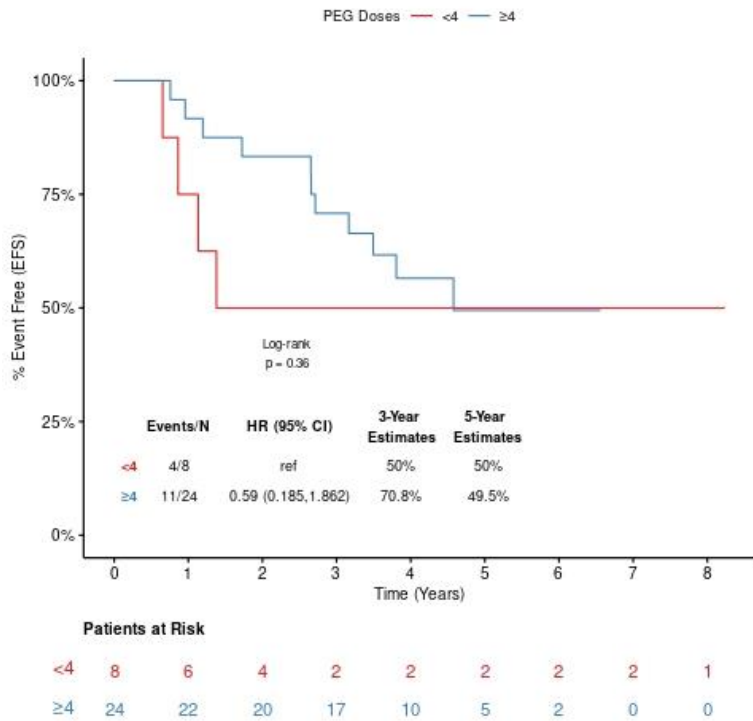
**Supplementary Figure 3D.** EFS for patients with high BMI based on number of pegasparginase doses



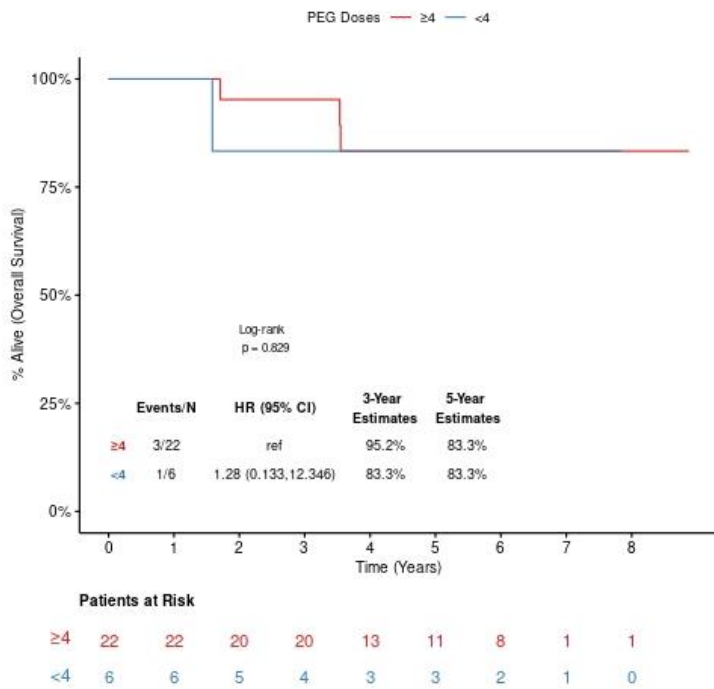
**Supplementary Figure 4A.** OS for patients with detectable MRD based on number of pegasparginase doses



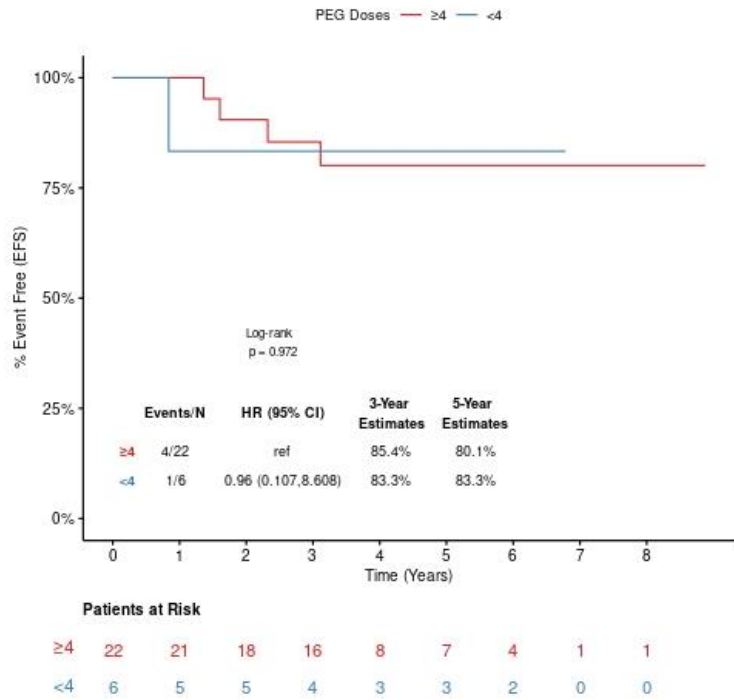
**Supplementary Figure 4B.** EFS for patients with detectable MRD based on number of pegasparginase doses



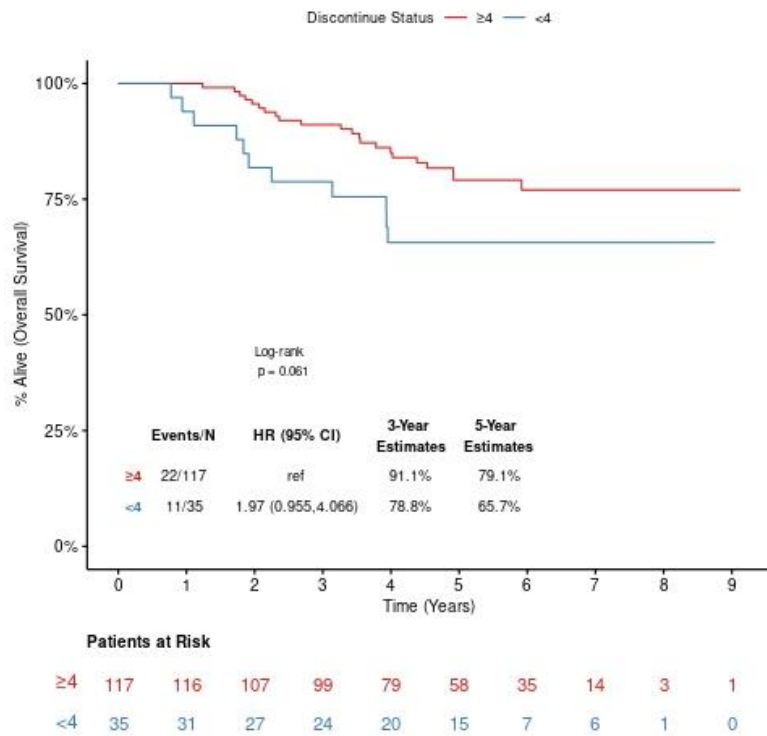
**Supplementary Figure 4C.** OS for patients with undetectable MRD based on number of pegasparginase doses



**Supplementary Figure 4D.** EFS for patients with undetectable MRD based on number of pegasparginase doses

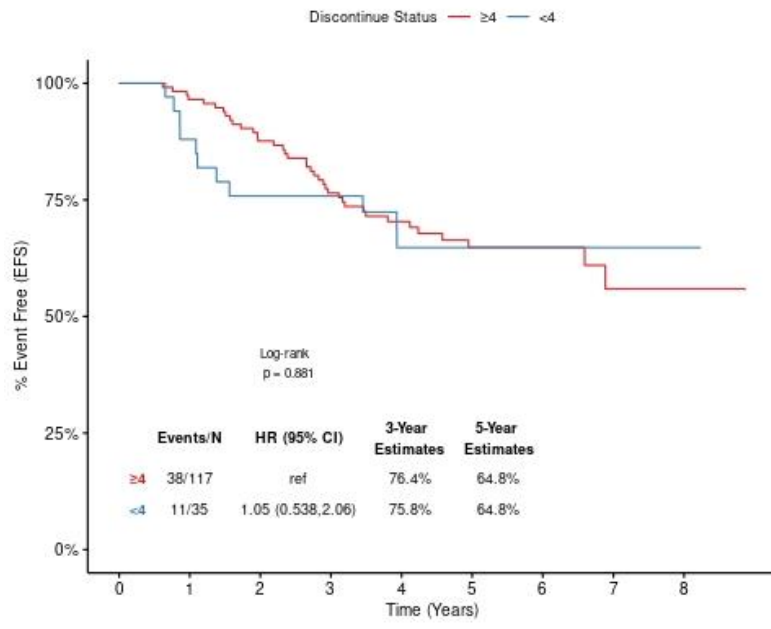


**Supplementary Figure 5A.** OS excluding patients with hypersensitivity





**Supplementary Figure 5B.** EFS excluding patients with hypersensitivity



**Patients at Risk**

$\geq 4$	117	110	97	81	57	38	22	8	2
$< 4$	35	29	25	23	17	12	6	5	1