

## **SUPPLEMENTARY MATERIALS**

### **The PRESSURE score to predict decompressive craniectomy after aneurysmal subarachnoid hemorrhage**

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**Supplementary Table 1:** Basic demographic, radiographic and clinical characteristics of the test and validation cohorts

Parameter	Mean values ( $\pm$ SD) or Percentage		p-value
	<i>test cohort</i>	<i>validation cohort</i>	
Cohort			
Number of patients	822	554	-
Age (years)	54.4 ( $\pm$ 13.5)	55 ( $\pm$ 13.6)	0.3609
Sex, (female)	67%	64.1%	0.2710
Hunt & Hess scale (grade)	3.0 ( $\pm$ 1.3)	2.9 ( $\pm$ 1.2)	0.0800
Fisher scale (grade)	3.3 ( $\pm$ 0.7)	3.3 ( $\pm$ 0.8)	0.7788
Aneurysm location (anterior circulation)	71.9%	74.4%	0.3230
Aneurysm size (mm)	7.2 ( $\pm$ 4.5)	7.1 ( $\pm$ 4.5)	0.6951
Treatment modality (clipping)	39.7%	38.1%	0.5734

**Supplementary Table 2:** Multivariate analysis of PrimDC and SecDC predictors in the test cohort

Predictors of PrimDC				
Parameter	aOR	95% CI		p-value
Younger age (<55 years old)	2.43	1.26	4.67	0.008
Hunt & Hess scale, (IV – V)	2.38	1.19	4.76	0.015
Aneurysm size (>5 mm)	3.08	1.53	6.21	0.002
Treatment modality (clipping)	137.86	48.94	388.36	<0.0001
Presence of ICH*	10.81	5.19	22.51	<0.0001
Angiographic vasospasm	3.44	1.21	9.79	0.021
Early infarction	2.39	1.24	4.61	0.009
Rebleeding	3.34	0.87	12.74	0.078
Fisher scale, (III – IV)	4.0	0.59	27.05	0.153
Aneurysm in the anterior circulation	0.89	0.36	2.21	0.798
WBC count (>11× 10 <sup>9</sup> /L)	1.65	0.78	3.47	0.189
Dilated/fixed pupils	1.52	0.53	4.35	0.434
Predictors of SecDC				
Younger age (<55 years old)	4.07	2.06	8.07	<0.0001
Aneurysm size (>5 mm)	2.35	1.25	4.44	0.008
Treatment modality (clipping)	2.98	1.53	5.84	0.001
Need for EVD	3.07	1.25	7.55	0.014
Presence of ICH	2.64	1.38	5.04	0.003
Early infarction	2.65	1.45	4.83	0.001
Angiographic vasospasm	3.38	1.65	6.94	0.001
Aneurysm in the anterior circulation	2.09	0.95	4.58	0.065
Hunt & Hess scale, (IV – V)	1.65	0.86	3.16	0.129
WBC count (>11× 10 <sup>9</sup> /L)	2.21	0.69	7.10	0.170

**Abbreviations:** ICH – intracerebral hemorrhage, WBC – white blood cells, EVD – external ventricular drainage, \* - according to the ROC curve for the association between the ICH volume and the need for PrimDC, the clinically relevant cutoff was 1 ml. Therefore, ICH volume was excluded from the multivariate analysis due to overlapping with the variable “Presence of ICH”.

**Supplementary Table 3:** Multivariate analysis of the outcome endpoints (unfavorable outcome at 6 months and in-hospital mortality) in the pooled sub-cohort of SAH individuals with the PRESSURE score  $\geq 6$  points and absence of brainstem herniation signs at admission

Parameter	Unfavorable Outcome				In-Hospital Mortality			
	aOR	95% CI		p-value	aOR	95% CI		p-value
DC within 24h	0.19	0.07	0.48	<0.0001	0.24	0.07	0.78	0.018
Cohort	0.49	0.22	1.06	0.071	1.04	0.47	2.29	0.925
PRESSURE score	2.08	1.26	3.46	0.004	1.34	0.81	2.23	0.259
Age, <55 years	0.04	0.01	0.35	0.003	2.13	0.54	8.36	0.278
Sex, female	1.31	0.65	2.64	0.446	1.61	0.74	3.50	0.231
Hunt&Hess, Gr. 4-5	0.89	0.37	2.16	0.803	5.19	1.14	23.56	0.033
Fisher grade, Gr. 3-4	$1.4 * 10^9$	-		0.999	$2.6 * 10^8$	-		0.999

**Abbreviations:** aOR – adjusted odds ratio; CI – confidence interval. Since only 4 individuals in this subgroup presented with low Fisher Grade (1 or 2), confidence intervals for this parameter were not calculated by the SPSS software.