

predictor variables	outcome group I (n = 16)			outcome group II (n = 48)		
	n	mean ± SD	median [Q1 - Q3]	n	mean ± SD	median [Q1 - Q3]
BL_HR	16	263.27 ± 76.25	251.95 [232.8 - 290.72]	48	198.03 ± 42.77	202.76 [176.89 - 221.6]
BL_DIAS	16	87.61 ± 43.7	96 [68.96 - 127.57]	48	138.81 ± 38.08	133.74 [118.83 - 154.85]
BL_SYS	16	95.86 ± 46.4	104.29 [73.07 - 134.32]	48	154.98 ± 42.59	149.01 [132.16 - 178.18]
BL_MAP	16	90.36 ± 44.53	98.77 [71.01 - 129.82]	48	144.2 ± 38.8	140.41 [121.66 - 162.83]
Δ ₁ lCBF	15	40.5 ± 37.4	26.26 [16.23 - 43.56]	44	-2.81 ± 15.02	-4.43 [-7.9 - 1.21]
Δ ₂ rCBF	15	2.71 ± 10.59	4.42 [-2.43 - 8.27]	45	54.86 ± 26.93	58.23 [32.76 - 79.49]
Δ ₃ lCBF	15	-75.46 ± 49.39	-55.94 [-89.58 - -42.34]	44	-23.65 ± 47.31	-11.99 [-32.53 - -2.6]
mean_rCBF	15	99.63 ± 16.43	101.52 [88.3 - 112.71]	45	75.31 ± 39.1	66.9 [52.21 - 82.8]
BL_weight	16	349.31 ± 36.73	347 [320 - 365]	48	363.65 ± 42.76	356.5 [333 - 385.5]

Table S1 Description of all possible predictors. Baseline heart rate (BL_HR) in bpm; baseline diastolic pressure (BL_DIAS) in mmHg; baseline systolic pressure (BL_SYS) in mmHg; baseline mean arterial pressure (BL_MAP) in mmHg; difference between mean left cerebral blood flow (CBF) before (t0 to < t120) and the mean after occlusion (t120 to t150) (Δ₁lCBF); difference between right CBF at baseline and at t0 (Δ₂rCBF); difference between time point t0 and t120 of left CBF (Δ₃lCBF); the mean of all time points of left CBF (t0 to t150) (mean_rCBF); initial weight in gram (BL_weight); standard deviation (SD); interquartile range (Q1-Q3)

single predictor	n	beta coefficient of predictors			performance			multivariable model
		log (OR)	SE	p-value	AUC	R ²	Brier Score	
BL_SYS	64	0.034	0.011	0.0017	0.83	0.25	0.13	excluded
BL_DIAS	64	0.038	0.012	0.0011	0.84	0.26	0.13	excluded
BL_MAP	64	0.037	0.012	0.0013	0.84	0.26	0.13	included
BL_HR	64	-0.028	0.009	0.0028	0.83	0.23	0.13	included
Δ ₁ ICBF	59	0.021	0.008	0.0086	0.89	0.16	0.15	included
Δ ₂ rCBF	60	0.193	0.078	0.0132	0.97	0.52	0.07	included
Δ ₃ lCBF	59	0.021	0.008	0.0086	0.95	0.42	0.09	excluded
mean_rCBF	60	-0.018	0.009	0.0442	0.81	0.08	0.18	excluded
BL_weight	64	0.009	0.008	0.2348	0.59	0.02	0.18	excluded

Table S2 Results of univariate logistic regression. Baseline heart rate (BL_HR); baseline diastolic pressure (BL_DIAS); baseline systolic pressure (BL_SYS); baseline mean arterial pressure (BL_MAP); difference between mean left cerebral blood flow (CBF) before (t0 to < t120) and the mean after occlusion (t120 to t150) (Δ₁ICBF); difference between right CBF at baseline and at t0 (Δ₂rCBF); difference between time point t0 and t120 of left CBF (Δ₃lCBF); the mean of all time points of left CBF (t0 to t150) (mean_rCBF); initial weight (BL_weight); logarithm of estimated odds ratio (log(OR)); standard error (SE); area under the curve (AUC); R-squared (R²); Brier score

number of predictors	included predictors	n	beta coefficients of predictors										model fitting information (AIC)	results of cross validation			
			Intercept		BL_HR		BL_MAP		$\Delta_1\text{ICBF}$		$\Delta_2\text{rCBF}$			AUC CV	95%-CI	Mann-Whitney-U	
			log (OR)	SE	log (OR)	SE	log (OR)	SE	log (OR)	SE	log (OR)	SE					
1	BL_HR	64	7.3924	2.1666	-0.0278	0.0093	-	-	-	-	-	-	59.05	0.8	(0.65,0.96)	0.012	
	BL_MAP	64	-3.3585	1.3924	-	-	0.037	0.0115	-	-	-	-	56.95	0.8	(0.68,0.93)	0.0013	
	$\Delta_1\text{ICBF}$	59	2.3845	0.5953	-	-	-	-	-0.1183	0.0339	-	-	38.59	0.94	(0.88,0.99)	0.1005	
	$\Delta_2\text{rCBF}$	60	-2.1559	0.9173	-	-	-	-	-	-	0.1932	0.078	27.89	0.95	(0.9,1.00)	0.1397	
2	BL_HR and BL_MAP	64	1.3039	2.0886	-0.0265	0.0096	0.047	0.0153	-	-	-	-	47.27	0.85	(0.74,0.97)	0.0341	
	BL_HR and $\Delta_1\text{ICBF}$	59	10.7438	4.2256	-0.0381	0.0177	-	-	-0.0963	0.034	-	-	33.85	0.94	(0.88,1.00)	0.1205	
	BL_MAP and $\Delta_1\text{ICBF}$	59	-1.7308	1.6319	-	-	0.0326	0.0133	-0.1233	0.0409	-	-	32.14	0.95	(0.9,1.00)	0.0531	
	BL_MAP and $\Delta_2\text{rCBF}$	60	-18.361	10.739	-	-	0.1108	0.065	-	-	0.294	0.1531	16.32	0.98	(0.95,1.00)	0.2214	
	BL_HR and $\Delta_2\text{rCBF}$	60	2.5931	2.3293	-0.0231	0.0118	-	-	-	-	0.2447	0.1113	24.37	0.96	(0.92,1.00)	0.1016	
	$\Delta_1\text{ICBF}$ and $\Delta_2\text{rCBF}$	59	-1.3935	2.2317	-	-	-	-	-0.2552	0.1286	0.2743	0.1807	13.51	0.98	(0.96,1.00)	0.1814	
3	BL_HR, BL_MAP and $\Delta_1\text{ICBF}$	59	4.7206	5.0304	-0.0424	0.0211	0.0558	0.0257	-0.1117	0.0414	-	-	26.24	0.96	(0.91,1.00)	0.115	
	BL_HR, BL_MAP and $\Delta_2\text{rCBF}$	60	-7.3086	10.368	-0.0313	0.0282	0.0846	0.055	-	-	0.2696	0.1384	16.72	0.98	(0.96,1.00)	0.1613	
	BL_HR, $\Delta_1\text{ICBF}$ and $\Delta_2\text{rCBF}$	59	39.0673	36.031	-0.1995	0.1714	-	-	-0.662	0.4946	0.779	0.5899	8.97*	0.98	(0.94,1.00)	0.2258	
	BL_MAP, $\Delta_1\text{ICBF}$ and $\Delta_2\text{rCBF}$	59	-24.4921	30.512	-	-	0.1593	0.2029	-0.4358	0.5334	0.3298	0.3393	11.66	0.97	(0.92,1.00)	0.2383	
4	BL_HR, BL_MAP, $\Delta_1\text{ICBF}$ and $\Delta_2\text{rCBF}$	59	5.3979	77.764	-0.1165	0.1533	0.1214	0.4413	-0.569	0.5119	0.4553	0.4206	10.26*	0.92	(0.83,1.00)	0.0638	

Table S3 Results of all multivariable logistic regression models. Baseline heart rate (BL_HR); baseline diastolic pressure (BL_DIAS); baseline systolic pressure (BL_SYS); baseline mean arterial pressure (BL_MAP); difference between mean left cerebral blood flow (CBF) before (t_0 to $< t_{120}$) and the mean after occlusion (t_{120} to t_{150}) ($\Delta_1\text{ICBF}$); difference between right CBF at baseline and at t_0 ($\Delta_2\text{rCBF}$); logarithm of estimated odds ratio (log(OR)); standard error (SE); area under the curve cross validation (AUC CV); Akaike information criterion (AIC); corresponding 95% confidence interval (95%-CI); p-values of Mann-Whitney-U-test (Mann-Whitney-U)

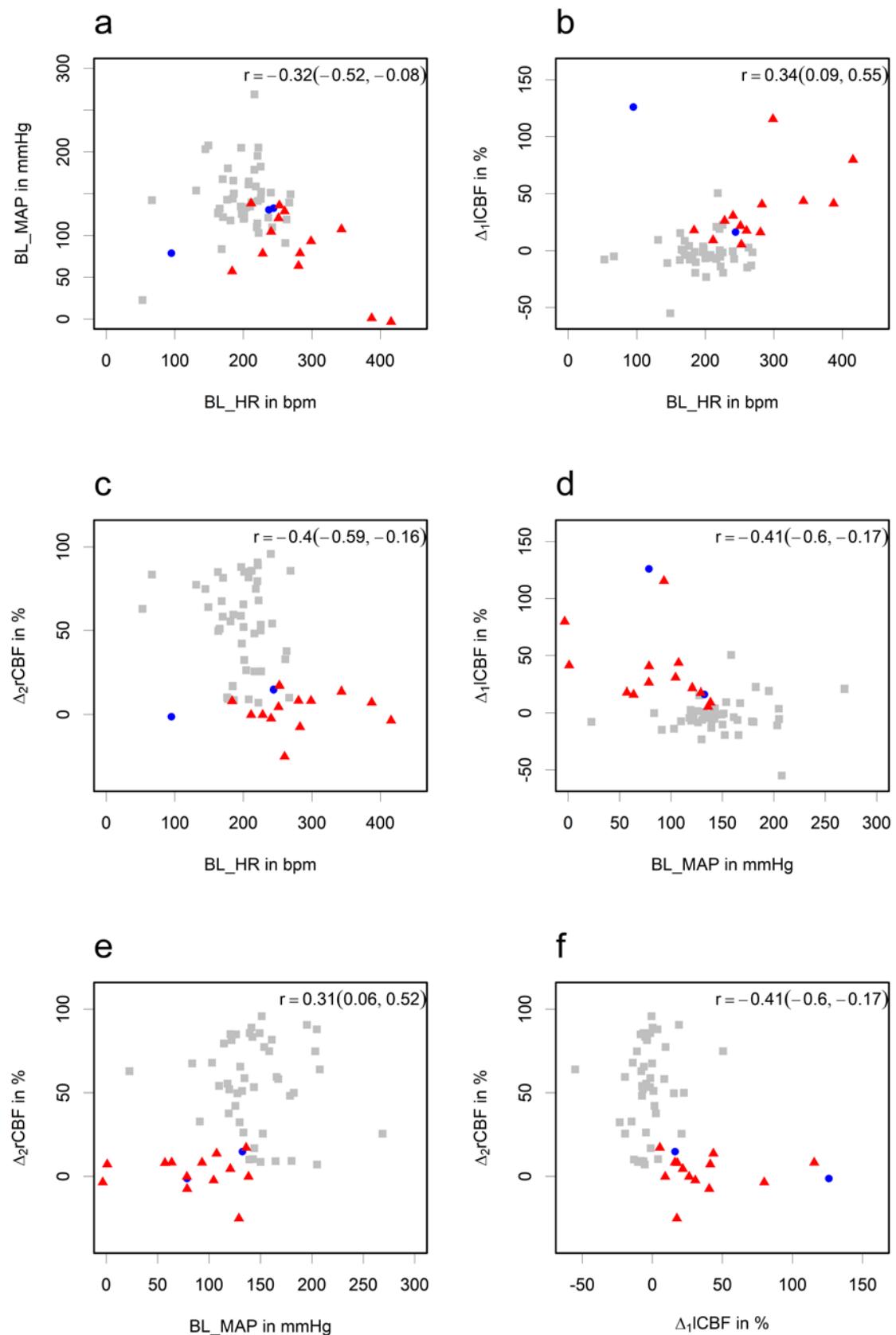


Figure S1. Correlation of **a** BL_MAP and BL_HR ($n = 64$) **b** $\Delta_1\text{ICBF}$ and BL_HR ($n = 59$) **c** $\Delta_2\text{rCBF}$ and BL_HR ($n = 60$) **d** $\Delta_1\text{ICBF}$ and BL_MAP ($n = 59$) **e** $\Delta_2\text{rCBF}$ and BL_MAP ($n = 60$) and **f** $\Delta_2\text{rCBF}$ and $\Delta_1\text{ICBF}$ ($n = 59$).

Baseline heart rate (BL_HR) in bpm; baseline mean arterial pressure (BL_MAP) in mmHg; difference between mean left cerebral blood flow before (t0 to $t < t_{120}$) and the mean after occlusion (t_{120} to t_{150}) ($\Delta_1\text{ICBF}$) in %; difference between right cerebral blood flow at baseline and at t0 ($\Delta_2\text{rCBF}$) in %; data of animals sacrificed after 3 hours (outcome group I) are expressed as blue circles; data of animals sacrificed after 7 days (outcome group I) are expressed as red triangles; data of animals sacrificed after 3 hours (outcome group II) are expressed as grey squares

*The maximum likelihood estimate does not exist because of complete separation¹. The information of the included predictors allow to separate completely outcome group I from outcome group II in this data set. Here, focus is on prediction not on specific estimate of the model. We only want to show the additional benefit of considering all possible predictors.

1. Albert A, Anderson JA. On the existence of maximum likelihood estimates in logistic regression models. *Biometrika*. 1984;71:1-10