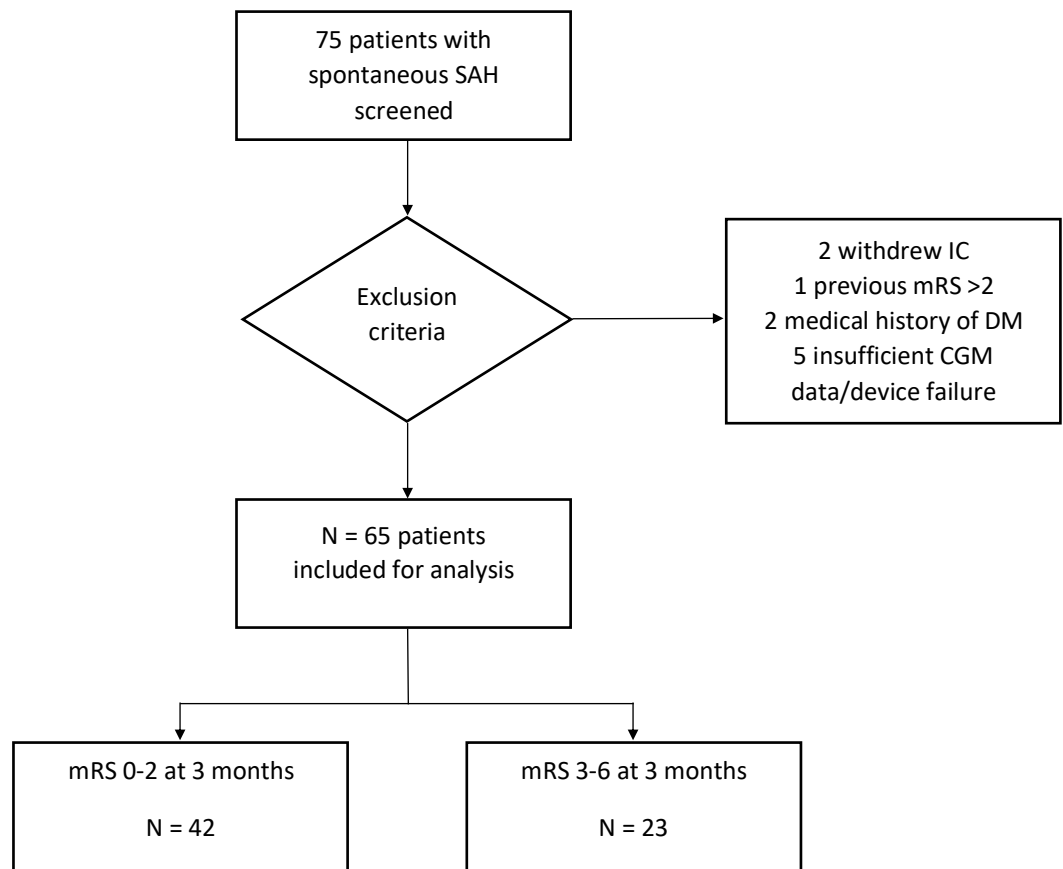


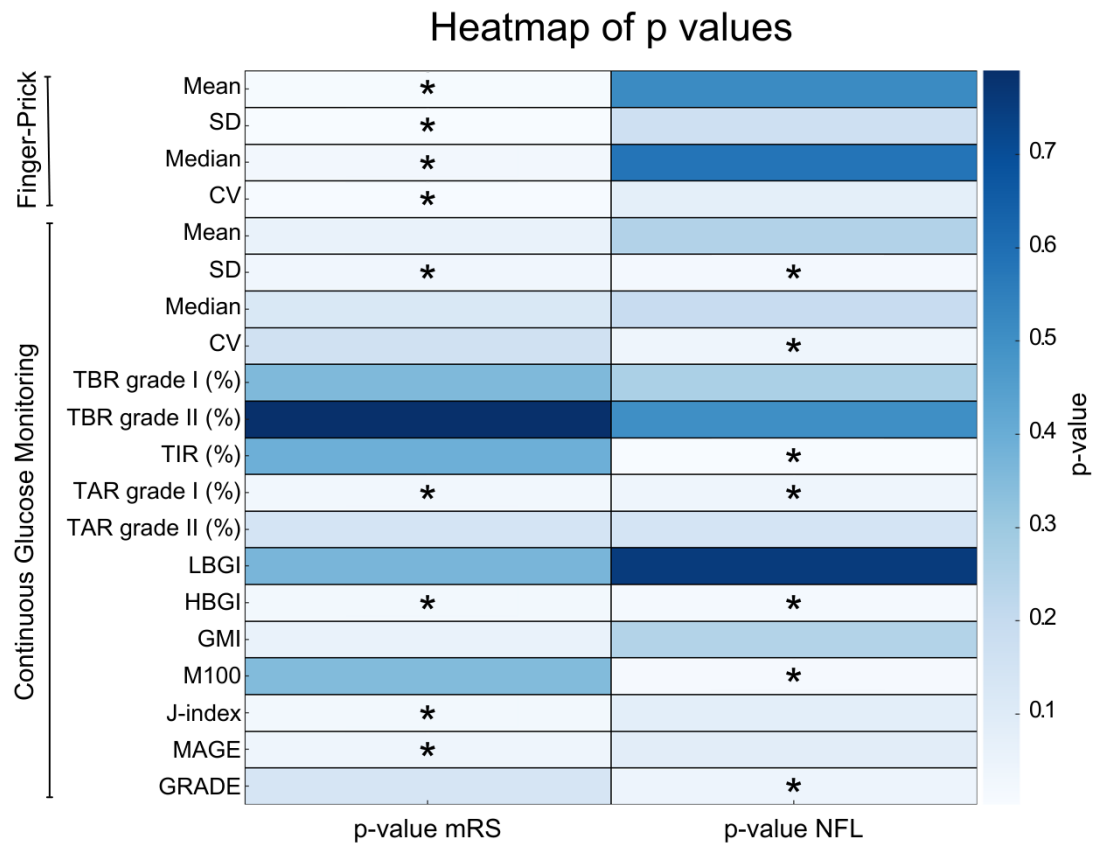
SUPPLEMENTARY MATERIAL

Supplementary Figure 1 Flux diagram of cohort enrolment



Legend: SAH, subarachnoid haemorrhage; IC, informed consent; mRS, modified Rankin Scale; DM, Diabetes Mellitus, CGM, Continuous Glucose Monitoring.

Supplementary Figure 2: Heatmap representing significant associations between finger-prick and CGM-derived parameters with clinical outcome at 3 months and NFL levels measured at the end of the EBI period.



Legend: Significant values ($p < 0.05$) are highlighted with asterisks (*).

CGM, Continuous Glucose Monitoring; NFL, neurofilament; EBI, Early Brain Injury; mRS, Modified Rankin Scale; SD, standard deviation; CV, coefficient of variation; TBR, Time Below Range; TIR, Time In Range; TAR, Time Above Range; LBGI, Low Blood Glucose Index; HBGI, High Blood Glucose Index; GMI, Glucose Management Indicator; MAGE, Mean Amplitude of Glycemic Excursions; GRADE, Glycemic Risk Assessment In Diabetes Equation.

Supplementary Table 1A. Static Glucose Parameters

Parameter	Comments
Mean	Arithmetic mean of glucose values
Median	50 th percentile of glucose values
Time In Range	% of tracked time spent between 70-140mg/dL
Time Below Range, Grade I	% of tracked time spent <70mg/dL
Time Below Range, Grade II	% of tracked time spent <54mg/dL
Time Above Range, Grade I	% of tracked time spent >140mg/dL
Time Above Range, Grade II	% of tracked time spent >180mg/dL

Supplementary Table 1B. Dynamic Glucose Parameters (Glycemic Variability). Adapted from Hill et al [1]

Parameter	Formula	Glossary	Comments
Standard deviation	$SD = \sqrt{\frac{\sum(x_n - \bar{x})^2}{n - 1}}$	x_n = Random glucose value $\bar{x}$ = Mean glucose value n = Number of measurements	-
Variation coefficient	$CV = \frac{SD}{mean} \cdot 100$	SD = Standard deviation	-
Low Blood Glucose Index	$LBGI = \frac{1}{n} \sum_{i=1}^n rl(x_i)$	n = Number of readings rl = Risk value associated x_i = Nonlinear transformation	Transformation of blood glucose scale. Estimates risk of hypoglycemic events.[2]
High Blood Glucose Index	$HBGI = \frac{1}{n} \sum_{i=1}^n rh(x_i)$	n = Number of readings rl = Risk value associated x_i = Nonlinear transformation	Transformation of blood glucose scale. Estimates risk of hyperglycemic events.[2].
Glucose Management Indicator	$GMI = 3.31 + 0.02392 \cdot \bar{x}$	$\bar{x}$ = Mean glucose value	Estimate of HbA1c levels based on CGM.[3]
M100	$M100 = \frac{1}{n} \sum_{i=1}^n \left 10 \log \frac{BGi}{100} \right ^3$	BGi = Random glucose value	Subtype of M_R analysis. Weighted average of glucose values at 100mg/dL. Larger penalties for more extreme values.[4]
J-index	$Jindex = 0.001 \cdot (mean + SD)$	SD = Standard deviation	Index focused in assessing hyperglycaemic load and greater glycaemic swings[5]
Mean Amplitude of Glycemic Excursions	$MAGE = \sum \frac{\lambda}{x} \text{ if } \lambda > 1SD$	λ = Glucose swings (peak to nadir or viceversa) x = Number of valid observations	Assesses amplitude of major excursions, defined as >1SD of mean glucose levels.[6]
Glycemic Risk Assessment In Diabetes Equation	$GRADE = M (425 \cdot \{\log[\log(Gn)] + 0.16\}^2)$	M = Median Gn = Glucose value	Provides a unitless risk score for hyper and hypoglycemic events.[7]

Supplementary Table 2. Logistic regression between both finger-prick and CGM-derived parameters and poor functional outcome at 3 months.

	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Finger-prick indices				
Mean (mg/dL)	1.09 (1.04, 1.13)	<0.001	1.07 (1.01, 1.12)	0.010
SD (mg/dL)	1.17 (1.08, 1.28)	<0.001	1.15 (1.05, 1.27)	0.003
Median (mg/dL)	1.08 (1.04, 1.12)	<0.001	1.05 (1.00, 1.10)	0.027
CV (mg/dL)	1.17 (1.05, 1.32)	0.004	1.18 (1.04, 1.33)	0.009
CGM indices				
Mean (mg/dL)	1.07 (1.03, 1.11)	<0.001	1.04 (1.00, 1.09)	0.059
SD (mg/dL)	1.18 (1.07, 1.29)	0.001	1.12 (1.01, 1.24)	0.031
Median (mg/dL)	1.06 (1.02, 1.12)	0.003	1.03 (0.99, 1.08)	0.121
CV (mg/dL)	1.11 (1.02, 1.22)	0.020	1.08 (0.97, 1.26)	0.162
TBR grade I (%)	0.96 (0.91, 1.01)	0.140	0.98 (0.92, 1.03)	0.358
TBR grade II (%)	0.94 (0.79, 1.13)	0.529	0.97 (0.79, 1.19)	0.790
TIR (%)	0.97 (0.95, 1.00)	0.056	0.98 (0.95, 1.02)	0.393
TAR grade I (%)	1.10 (1.04, 1.16)	0.001	1.07 (1.01, 1.13)	0.030
TAR grade II (%)	1.07 (1.00, 1.14)	0.044	1.06 (0.98, 1.14)	0.144
LBGI	0.75 (0.55, 1.02)	0.064	0.88 (0.66, 1.17)	0.371
HBGI	1.28 (1.11, 1.49)	0.001	1.21 (1.03, 1.43)	0.022
GMI	1.31 (1.12, 1.54)	<0.001	1.19 (0.99, 1.42)	0.060
M100	1.01 (0.99, 1.03)	0.060	1.01 (0.99, 1.02)	0.352
J-index	1.29 (1.12, 1.48)	0.001	1.20 (1.02, 1.40)	0.023
MAGE	1.09 (1.03, 1.15)	0.001	1.06 (1.01, 1.13)	0.038
GRADE	1.71 (1.18, 2.49)	0.005	1.41 (0.90, 2.22)	0.136

Legend: OR estimates reflect the change per unit increase in glucose metrics, except for TAR Grade I, HBGI, and GMI, which are expressed per 0.1-unit increase for clarity in the graphical representation. Variables are adjusted by age, dichotomic WFNS and hypertension.

CGM, Continuous Glucose Monitoring; OR, Odds Ratio; CI, Confidence Interval; IQR, Interquartile Range; SD, standard deviation; CV, coefficient of variation; CGM, Continuous Glucose Monitoring; TBR, Time Below Range; TIR, Time In Range; TAR, Time Above Range; LBGI, Low Blood Glucose Index; HBGI, High Blood Glucose Index; GMI, Glucose Management Indicator; MAGE, Mean Amplitude of Glycemic Excursions; GRADE, Glycemic Risk Assessment In Diabetes Equation; WFNS, World Federation of Neurosurgical Societies scale.

Supplementary Table 3. Unadjusted linear regression between demographics/clinical features, and NFL levels (log-transformed) 72 hours after hospital admission

Predictor	Unadjusted beta (95% CI)	p-value
Sex (female)	0.13 (-0.53-0.78)	0.697
Age (per year)	0.03 (0.00-0.05)	0.041
Premorbid mRS	-0.27 (-1.38-0.84)	0.628
Smoking	-0.23 (-0.89-0.42)	0.472
Hypertension	0.57 (-0.08-1.21)	0.083
Dyslipidaemia	-0.19 (-1.02-0.63)	0.637
Ischemic heart disease	-1.59 (-4.02-0.84)	0.196
Modified Fisher	0.20 (-0.22-0.62)	0.349
WFNS	1.12 (0.50-1.73)	0.001
Aneurysm	0.25 (-0.57-1.07)	0.542
Aneurysmal size (per mm)	0.06 (-0.01-0.13)	0.106
Acute hydrocephalus	0.47 (-0.20-1.15)	0.168
EVD placement	0.86 (0.24-1.48)	0.007
Intraparenchymal bleeding	0.45 (-0.32-1.21)	0.248
Global cerebral oedema	-0.06 (-0.81-0.70)	0.875
Angiographic vasospasm	-0.01 (-0.09-0.07)	0.830
Delayed cerebral ischemia	0.01 (-0.07-0.10)	0.850

Legend: NFL, Neurofilament; CI, Confidence Interval; mRS, Modified Rankin Scale; WFNS, World Federation of Neurosurgical Societies scale; EVD, External Ventricular Drain.

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