

SUPPLEMENTAL DATA

Plasma Sestrin2 levels and risk of acute ischemic stroke: A case–control study

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Full article is available at the following link: [Plasma Sestrin2 levels and risk of acute ischemic stroke: A case–control study](#)

Supplementary table S1. Missing data from all study groups

Variable	Number of missing data <i>n</i> (%)		
	Controls	AIS patients	TIA and stroke mimics
Plasma Sestrin2 at onset	2 (6.7)	5 (2.7)	1 (2.1)
Plasma Sestrin2 at Day5	2 (6.7)	5 (2.7)	1 (2.1)
Plasma Sestrin2 at Day 30	NA	135 (72.2)	30 (63.8)
TAC at onset	10 (33.3)	80 (42.8)	27 (57.4)
TAC at Day 5	NA	80 (42.8)	27 (57.4)
TAC at Day 30	NA	181 (96.8)	46 (97.9)
NO at onset	10 (33.3)	80 (42.8)	27 (57.4)
NO at Day 5	NA	80 (42.8)	27 (57.4)
NO at Day 30	NA	181 (96.8)	NA
Age	NA	0	0
Gender	NA	0	0
NIHSS	NA	0	0
Height	NA	2 (1.1)	1 (1.1)
weight	NA	1 (0.5)	0
BMI	NA	2 (1.1)	2 (2.2)
Prior stroke history	NA	1 (0.5)	0
Prior TIA history	NA	2 (1.1)	0
Glucose	NA	0	2 (2.2)
HbA1c	NA	3 (1.6)	1 (1.1)
Cholesterol	NA	2 (1.1)	7 (7.6)
LDL	NA	3 (1.6)	7 (7.6)
HDL	NA	2 (1.1)	7 (7.6)
Triglycerides	NA	2 (1.1)	7 (7.6)
Homocysteine	NA	28 (15)	13 (14.1)
Insulin	NA	32 (17.1)	16 (17.4)
SVD	NA	8 (4.3)	4 (4.3)

Abbreviations: TAC: Total antioxidant capacity; NO: Nitric oxide; NIHSS: National Institutes of Health Stroke Scale; BMI: Body mass index; TIA: Transient ischemic

attack; LDL: Low density lipoprotein; HDL: High density lipoprotein; HbA1c: Glycated hemoglobin A1c; SVD: Small vessel disease; NA: Not available.

Supplementary table S2. Cardiometabolic indicators across different Sestrin2 tertiles in AIS patients

Cardiometabolic indicators (mean $\pm$ SD) or n (%)	T1 (n=69) < 0.344 (0.261 $\pm$ 0.05)	T2 (n=69) 0.344 – 0.502 (0.416 $\pm$ 0.04)	T3 (n=46) > 0.502 (4.84 $\pm$ 5.65)	p value
Gender (male)	62 (95.4)	62 (89.9)	44 (95.7)	0.34
Diabetes on admission	27 (41.5)	37 (53.6)	21 (45.7)	0.37
Hypertension on admission	48 (73.8)	51 (73.9)	33 (71.7)	0.96
Age (years)	48.8 $\pm$ 8.7	50.5 $\pm$ 9.4	49.1 $\pm$ 10.8	0.53
BMI (kg/m²)	27.5 $\pm$ 4.1	27.1 $\pm$ 3.9	27.6 $\pm$ 3.9	0.89
DBP (mmHg)	99.2 $\pm$ 27.9	97.9 $\pm$ 18.8	92.5 $\pm$ 17.5	0.23
SBP (mmHg)	159.8 $\pm$ 27.2	165.4 $\pm$ 32.4	158.4 $\pm$ 30.3	0.51
NIHSS	4.5 $\pm$ 3.9	4.03 $\pm$ 3.5	4.9 $\pm$ 3.5	0.26
Glucose (mmol/L)	8.8 $\pm$ 4.5	9.5 $\pm$ 5.2	8.4 $\pm$ 3.2	0.77
TC (mmol/L)	5.2 $\pm$ 1.3	4.9 $\pm$ 1.3	5.1 $\pm$ 1	0.64
HDL (mmol/L)	0.95 $\pm$ 0.25	0.95 $\pm$ 0.26	0.95 $\pm$ 0.24	0.99
LDL (mmol/L)	3.4 $\pm$ 1.2	3.1 $\pm$ 1	3.3 $\pm$ 1	0.34
TG (mmol/L)	1.6 $\pm$ 0.9	1.8 $\pm$ 1.2	1.7 $\pm$ 0.8	0.78
Insulin (mIU/L)	29.6 $\pm$ 36	32 $\pm$ 30.4	36.6 $\pm$ 27.6	0.09
HbA1c (%)	7 $\pm$ 2.2	7.7 $\pm$ 2.6	6.9 $\pm$ 1.7	0.19
TAC (nmol/μl)	1.8 $\pm$ 0.4	1.9 $\pm$ 0.5	1.9 $\pm$ 0.4	0.21
Total Nitrite/Nitrate (nmol/L)	50.7 $\pm$ 41.1	60.9 $\pm$ 57.7	50.7 $\pm$ 45.5	0.5

Abbreviations: AIS: Acute ischemic stroke; BMI: Body mass index; DBP: Diastolic blood pressure; SBP: Systolic blood pressure; NIHSS: National Institutes of Health Stroke Scale; TC: Total cholesterol; HDL: High density lipoprotein; LDL: Low density lipoprotein; TG: Triglycerides; TAC: Total antioxidant capacity; SD: Standard deviation.

Supplementary table S3. Cardiometabolic indicators across different TAC tertiles in AIS patients

Cardiometabolic indicators (mean $\pm$ SD) or n (%)	T1 (n=42) < 1.797 (1.45 $\pm$ 0.23)	T2 (n=36) 1.797 - 2.1897 (1.99 $\pm$ 0.11)	T3 (n=29) 2.1897 (2.4 $\pm$ 0.19)	p value
Age (years)	50.1 $\pm$ 9.3	46.7 $\pm$ 9.8	51.7 $\pm$ 8.9	0.13
BMI (kg/m²)	27.2 $\pm$ 4.1	27.8 $\pm$ 3.8	27.1 $\pm$ 4.7	0.5
DBP (mmHg)	94.6 $\pm$ 16.8	94.1 $\pm$ 21.4	94.5 $\pm$ 16.2	0.8
SBP (mmHg)	156.8 $\pm$ 28.3	155.4 $\pm$ 30.5	162.9 $\pm$ 30.6	0.4
Glucose (mmol/L)	8.7 $\pm$ 3.6	9.3 $\pm$ 5.02	8.9 $\pm$ 4.2	0.95
TC (mmol/L)	5.1 $\pm$ 1.2	4.7 $\pm$ 1.3	4.9 $\pm$ 1.02	0.32
HDL (mmol/L)	0.97 $\pm$ 0.29	0.87 $\pm$ 0.26	0.91 $\pm$ 0.19	0.4
LDL (mmol/L)	3.4 $\pm$ 1.1	3.1 $\pm$ 1.2	3.1 $\pm$ 0.9	0.14
TG (mmol/L)	1.5 $\pm$ 0.8	1.8 $\pm$ 0.9	1.9 $\pm$ 1.04	0.3
Insulin (mIU/L)	29.9 $\pm$ 24.4	31 $\pm$ 33.1	33.9 $\pm$ 40.7	0.97
HbA1c (%)	7.1 $\pm$ 2.2	7.4 $\pm$ 2.8	7.2 $\pm$ 2.1	0.97
Sestrin2 (ng/ml)	0.9 $\pm$ 1.6	0.8 $\pm$ 1.4	1.6 $\pm$ 4.6	0.65
Total Nitrite/Nitrate (nmol/L)	41.9 $\pm$ 32.2	59.3 $\pm$ 56.4	63.1 $\pm$ 53.5	0.15

Abbreviations: AIS: Acute ischemic stroke; TAC: Total antioxidant capacity; BMI: Body mass index; DBP: Diastolic blood pressure; SBP: Systolic blood pressure; TC: Total cholesterol; HDL: High density lipoprotein; LDL: Low density lipoprotein; TG: Triglycerides; HbA1c: Glycated hemoglobin A1c; SD: Standard deviation.

Supplementary table S4. Cardiometabolic indicators across different NO tertiles in AIS patients

Cardiometabolic indicators (mean ± SD) or n (%)	T1 (n=42) < 32.575 (19.04 ± 8.81)	T2 (n=43) 32.575 - 57.333 (43.2 ± 7.4)	T3 (n=42) > 57.333 (106. 84 ± 53.38)	<i>p</i> value *
Gender (male)	40 (97.6)	28 (90.3)	32 (91.1)	0.39
Diabetes on admission	17 (41.5)	16 (51.6)	17 (48.6)	0.67
Hypertension on admission	25 (61)	20 (64.5)	26 (74.3)	0.45
Age (years)	48.9 ± 10.6	49.3 ± 8.6	50.1 ± 9.3	0.85
BMI (kg/m²)	26.8 ± 3.05	27.5 ± 4.7	27.8 ± 4.6	0.54
DBP (mmHg)	91.7 ± 17.3	91.8 ± 15.4	99.9 ± 20.5	0.09
SBP (mmHg)	151.6 ± 28.3	161.1 ± 31.4	162.8 ± 28.8	0.19
NIHSS	5.7 ± 4.3	5.5 ± 4.5	4.2 ± 3.1	0.43
Glucose (mmol/L)	8.1 ± 2.9	9.1 ± 4.5	9.6 ± 5.1	0.79
TC (mmol/L)	5.1 ± 1.1	4.9 ± 1.1	4.6 ± 1.1	0.22
HDL (mmol/L)	0.94 ± 0.2	0.9 ± 0.3	0.9 ± 0.3	0.76
LDL (mmol/L)	3.3 ± 1.1	3.3 ± 0.9	2.8 ± 1.2	0.1
TG (mmol/L)	1.7 ± 0.9	1.5 ± 0.6	1.9 ± 1.1	0.67
Insulin (mIU/L)	21.2 ± 14.5	25.4 ± 22.1	50.9 ± 47.3	0.009
HbA1c (%)	6.7 ± 1.7	7.2 ± 2.5	7.7 ± 2.9	0.47
TAC (nmol/μl)	1.8 ± 0.4	1.8 ± 0.4	2.0 ± 0.3	0.07
Sestrin2 (ng/ml)	1.0 ± 1.6	0.62 ± 1.1	1.5 ± 4.2	0.74

*Bold numbers indicate significant *p* values. Abbreviations: AIS: Acute ischemic stroke; NO: Nitric oxide; TAC: Total antioxidant capacity; BMI: Body mass index; DBP: Diastolic blood pressure; SBP: Systolic blood pressure; NIHSS: National Institutes of Health Stroke Scale; TC: Total cholesterol; HDL: High density

lipoprotein; LDL: Low density lipoprotein; TG: Triglycerides; HbA1c: Glycated hemoglobin A1c; SD: Standard deviation.

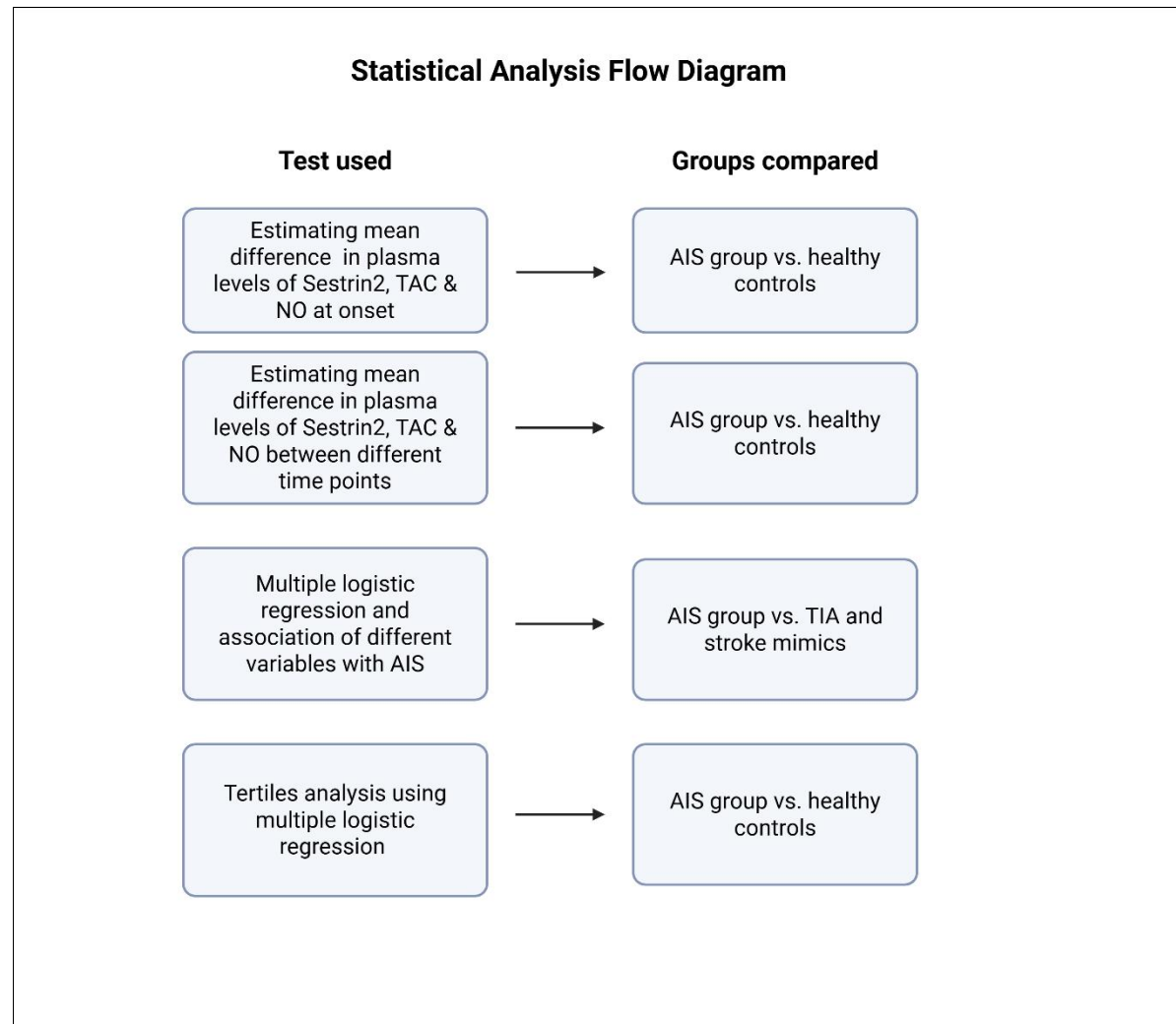
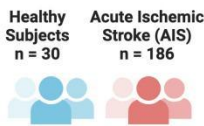


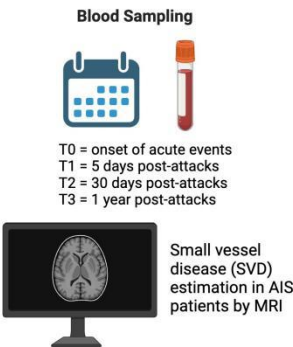
Figure S1. Statistical analysis flow diagram. Due to the unavailability of baseline characteristics for the healthy controls, a group of transient ischemic attack (TIA) and stroke mimics was incorporated at various stages of the statistical analysis.

Graphical abstract

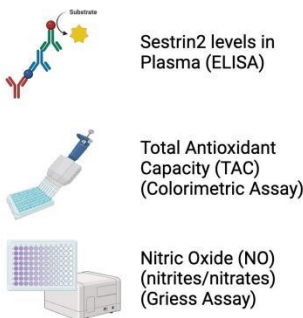
1 Study design



2 Sample collection and Clinical Assessment

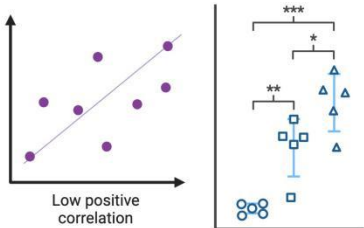


3 Biochemical Analyses

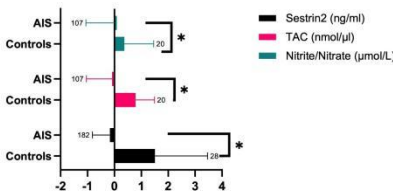


4 Statistical Analysis

The association between plasma levels of Sestrin2, total antioxidant capacity (TAC), and nitric oxide (NO) with the risk of AIS and recurrence.



5 Key Findings



- Lower plasma Sestrin2, TAC, and NO levels at onset of AIS compared to controls.
- Mid-tertile Sestrin2, TAC, and NO levels are associated with reduced AIS risk.
- Findings suggest a protective role of Sestrin2 against AIS recurrence.