

**Table S1. Baseline characteristics of included and excluded patients with AIS/TIA from the CNSR-III study**

Characteristics	ALL(n=15166)	Excluded(n=2563)	INCLUDED(n=12603)	P value
Age, years, mean(SD)	32.2±11.3	61.7±11.6	62.3±11.2	0.01
BMI, kg/m <sup>2</sup> , mean(SD)	24.7±3.3	24.6±3.2	24.7±3.4	0.22
Sex, male(%)	10365(68.3)	1765(68.9)	8599(68.2)	0.53
Alcohol intake, n(%)	2126(14.0)	351(13.7)	1775(14.1)	0.61
Tobacco intake, n(%)	4752(31.3)	820(32.0)	3932(31.2)	0.43
SBP, mm Hg, median(IQR)	148.0(135.0-163.5)	147.5(135.0-162.5)	148.5(135.0-163.5)	0.12
DBP, mm Hg, median(IQR)	86.0(79.0-95.0)	85.0(79.0-95.0)	86.5(79.0-95.5)	0.043
History of disease, n(%)				
Diabetes mellitus	3510(23.1)	644(25.1)	2866(22.7)	0.009
Hypertension	9494(62.6)	1581(61.7)	7913(62.8)	0.29
Hyperlipidemia	1191(7.9)	187(7.3)	1004(8.0)	0.25
Stroke	3355(22.1)	591(23.1)	2764(21.9)	0.21
TIA	416(2.7)	76(3.0)	340(2.7)	0.45
Coronary artery disease	1608(10.6)	331(12.9)	1277(10.1)	<0.001
Heart failure	94(0.6)	19(0.7)	75(0.6)	0.39
Peripheral artery disease	118(0.8)	24(0.9)	94(0.8)	0.32
Medication use during hospitalization or at discharge, n(%)				
Anti-platelet treatment	14822(97.7)	2475(96.6)	12347(98.0)	<0.001
Anticoagulation treatment	1621(10.7)	345(13.5)	1276(10.1)	<0.001
Stains treatment	14731(97.1)	2448(95.5)	12283(97.5)	<0.001
Hypoglycemic treatment	4046(26.7)	720(28.1)	3326(26.4)	0.08
Antihypertension treatment	8136(53.7)	1355(52.9)	6781(53.8)	0.39

NIHSS on admission, median(IQR)	3.0(1.0-6.0)	3.0(1.0-6.0)	3.0(1.0-6.0)	0.20
mRS, median(IQR)	0.0(0.0-1.0)	0.0(0.0-1.0)	0.0(0.0-1.0)	<0.001
Index event, n(%)				0.02
Ischemic stroke	14146(93.3)	2363(92.2)	11783(93.5)	
TIA	1020(6.7)	200(7.8)	820(6.5)	
TOAST, n(%)				<0.001
Large artery atherosclerosis	3856(25.4)	526(20.5)	3330(26.4)	
Cardioembolism	917(6.1)	188(7.3)	729(5.8)	
Small vascular occlusion	3165(20.9)	300(11.7)	2865(22.7)	
Other determination	182(1.2)	11(0.4)	171(1.4)	
Undetermined	7046(46.5)	1538(60.0)	5508(43.7)	

SD, standard deviation; IQR, interquartile range; AIS, acute ischemic attack; TIA, transient ischemic attack; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; CSVD, cerebral small vessel disease; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.

**Table S2. Baseline characteristics of patients with AIS/TIA according to CSO-EPVS**

Characteristics	CSO-EPVS			
	None/Mild (n=6539)	Moderate (n=4352)	Frequency/Severe (n=1712)	P value
Age, years, mean(SD)	61.9±11.7	62.6±10.8	63.3±10.4	<0.001
BMI, kg/m <sup>2</sup> , mean(SD)	24.7±3.4	24.8±3.4	24.7±3.1	0.18
Sex, male(%)	4354(66.6)	3011(69.2)	1234(72.1)	<0.001
Alcohol intake, n(%)	883(13.5)	642(14.8)	250(14.6)	0.15
Tobacco intake, n(%)	2061(31.5)	1365(31.4)	506(29.6)	0.28
SBP, mm Hg, median(IQR)	147.5(134.5-163.0)	149.0(135.0-164.0)	150.0(137.0-165.0)	<0.001
DBP, mm Hg, median(IQR)	86.0(79.0-95.0)	87.0(79.5-96.0)	87.5(80.0-96.5)	<0.001
History of disease, n(%)				
Diabetes mellitus	1479(22.6)	983(22.6)	404(23.6)	0.66
Hypertension	3908(59.8)	2799(64.3)	1206(70.4)	<0.001
Hyperlipidemia	482(7.4)	375(8.6)	147(8.6)	0.04
Stroke	1366(20.9)	982(22.6)	416(24.3)	0.005
TIA	157(2.4)	126(2.9)	57(3.3)	0.07
Coronary artery disease	648(9.9)	454(10.4)	175(10.2)	0.67
Heart failure	47(0.7)	20(0.5)	8(0.5)	0.17
Peripheral artery disease	43(0.7)	39(0.9)	12(0.7)	0.36
Medication use during hospitalization or at discharge, n(%)				
Anti-platelet treatment	6388(97.7)	4277(98.3)	1682(98.3)	0.07
Anticoagulation treatment	660(10.1)	445(10.2)	171(10.0)	0.96
Stains treatment	6359(97.3)	4248(97.6)	1676(97.9)	0.23
Hypoglycemic treatment	1708(26.1)	1140(26.2)	478(27.9)	0.30

Antihypertension treatment	3311(50.6)	2411(55.4)	1059(61.9)	<0.001
NIHSS on admission, median(IQR)	3.0(1.0-6.0)	3.0(1.0-6.0)	3.0(1.0-5.0)	0.02
mRS, median(IQR)	0.0(0.0-0.0)	0.0(0.0-1.0)	0.0(0.0-1.0)	0.005
Index event, n(%)				
Ischemic stroke	6120(93.6)	4065(93.4)	1598(93.3)	0.89
TIA	419(6.4)	287(6.6)	114(6.7)	
TOAST, n(%)				0.002
Large artery atherosclerosis	1646(25.2)	1189(27.3)	495(28.9)	
Cardioembolism	398(6.1)	240(5.5)	91(5.3)	
Small vascular occlusion	1454(22.2)	988(22.7)	423(24.7)	
Other determination	92(1.4)	57(1.3)	22(1.3)	
Undetermined	2949(45.1)	1878(43.2)	681(39.8)	
CSVD markers				
D-WMH, median(IQR)	1.0(1.0-2.0)	1.0(1.0-2.0)	1.0(1.0-2.0)	<0.001
PV-WMH, median(IQR)	1.0(1.0-2.0)	1.0(1.0-2.0)	2.0(1.0-2.0)	0.03
Lacune, n(%)	2971(45.4)	2268(52.1)	987(57.7)	<0.001

SD, standard deviation; IQR, interquartile range; AIS, acute ischemic attack; TIA, transient ischemic attack; EPVS, enlarged perivascular spaces; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; CSVD, cerebral small vessel disease; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.

**Table S3. The associations between BG-EPVS and clinical outcomes in patients with AIS/TIA**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	523(6.1)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	192(6.1)	1.01(0.86-1.19)	0.90	0.95(0.81-1.13)	0.59	0.90(0.76-1.08)	0.26	0.95(0.80-1.13)	0.56
Frequent/Severe	46(5.5)	0.91(0.67-1.23)	0.54	0.82(0.60-1.11)	0.19	0.76(0.55-1.04)	0.09	0.85(0.62-1.15)	0.29
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	496(5.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	179(5.7)	0.99(0.84-1.18)	0.94	0.93(0.78-1.11)	0.45	0.89(0.74-1.06)	0.20	0.93(0.78-1.11)	0.42
Frequent/Severe	40(4.8)	0.83(0.60-1.15)	0.27	0.74(0.53-1.03)	0.07	0.70(0.50-0.98)	0.04	0.77(0.55-1.07)	0.12
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	34(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	15(0.5)	1.22(0.66-2.24)	0.53	1.20(0.64-2.25)	0.57	1.13(0.59-2.17)	0.71	1.28(0.68-2.41)	0.45
Frequent/Severe	6(0.7)	1.83(0.77-4.37)	0.17	1.83(0.74-4.53)	0.19	1.48(0.58-3.78)	0.41	1.92(0.78-4.77)	0.16
<b>CVE at 3 months</b>									
None/Mild	534(6.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	203(6.5)	1.05(0.89-1.23)	0.57	0.98(0.83-1.16)	0.81	0.94(0.79-1.12)	0.47	0.98(0.83-1.16)	0.81

Frequent/Severe	49(5.9)	0.95(0.71-1.27)	0.72	0.84(0.62-1.13)	0.25	0.80(0.58-1.08)	0.14	0.87(0.65-1.18)	0.37
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	993(11.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	405(13.3)	1.15(1.02-1.30)	0.03	0.96(0.85-1.09)	0.55	0.99(0.86-1.14)	0.88	1.05(0.91-1.22)	0.48
Frequent/Severe	117(14.6)	1.28(1.04-1.58)	0.02	0.93(0.75-1.15)	0.51	0.99(0.78-1.26)	0.93	1.12(0.88-1.42)	0.35
<b>All-cause death at 3 months</b>									
None/Mild	93(1.1)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	44(1.4)	1.31(0.91-1.87)	0.14	0.91(0.63-1.32)	0.63	0.95(0.65-1.38)	0.77	1.01(0.70-1.46)	0.96
Frequent/Severe	16(1.9)	1.79(1.06-3.05)	0.03	0.93(0.54-1.60)	0.80	0.98(0.56-1.73)	0.95	1.11(0.64-1.93)	0.72
<b>Stroke at 1 year</b>									
None/Mild	802(9.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	301(9.6)	1.04(0.91-1.19)	0.58	0.97(0.85-1.12)	0.70	0.86(0.75-0.99)	0.04	0.96(0.84-1.10)	0.57
Frequent/Severe	86(10.3)	1.12(0.89-1.39)	0.34	0.99(0.79-1.25)	0.94	0.82(0.65-1.04)	0.10	1.01(0.80-1.27)	0.93
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	752(8.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	276(8.8)	1.02(0.88-1.17)	0.83	0.94(0.82-1.09)	0.42	0.85(0.73-0.98)	0.03	0.94(0.81-1.08)	0.36
Frequent/Severe	69(8.3)	0.95(0.75-1.22)	0.71	0.83(0.65-1.07)	0.16	0.71(0.55-0.92)	0.01	0.86(0.67-1.11)	0.24

<b>Hemorrhage stroke at 1 year</b>									
None/Mild	60(0.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	29(0.9)	1.34(0.86-2.09)	0.20	1.40(0.88-2.21)	0.15	1.03(0.65-1.65)	0.89	1.33(0.84-2.11)	0.23
Frequent/Severe	17(2.0)	2.98(1.74-5.10)	<0.001	3.25(1.84-5.77)	<0.001	1.99(1.11-3.58)	0.02	3.06(1.73-5.42)	<0.001
<b>CVE at 1 year</b>									
None/Mild	836(9.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	322(10.3)	1.07(0.94-1.21)	0.33	0.99(0.87-1.13)	0.92	0.88(0.77-1.01)	0.08	0.98(0.86-1.12)	0.79
Frequent/Severe	95(11.4)	1.18(0.96-1.46)	0.12	1.04(0.84-1.30)	0.72	0.87(0.70-1.09)	0.23	1.06(0.85-1.32)	0.59
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	783(9.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	335(11.4)	1.22(1.07-1.40)	0.004	0.94(0.82-1.08)	0.40	0.91(0.78-1.06)	0.22	1.00(0.86-1.17)	0.96
Frequent/Severe	100(13.2)	1.45(1.16-1.81)	0.001	0.91(0.72-1.15)	0.43	0.88(0.68-1.14)	0.34	1.08(0.84-1.39)	0.53
<b>All-cause death at 1 year</b>									
None/Mild	226(2.6)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	109(3.5)	1.34(1.06-1.68)	0.01	0.94(0.75-1.19)	0.61	0.87(0.69-1.11)	0.27	0.99(0.78-1.26)	0.95
Frequent/Severe	47(5.6)	2.19(1.60-3.00)	<0.001	1.18(0.85-1.63)	0.32	1.06(0.76-1.48)	0.74	1.31(0.94-1.82)	0.11

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

\*A total of 12304 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 299 patients without available mRS score at 3-month follow-up.

\*\*A total of 11932 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 671 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; AIS, acute ischemic attack; TIA, transient ischemic attack; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.



**Table S4. The associations between CSO-EPVS and clinical outcomes in patients with AIS/TIA**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	381(5.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	281(6.5)	1.11(0.95-1.30)	0.19	1.11(0.95-1.29)	0.19	1.11(0.95-1.30)	0.19	1.10(0.94-1.29)	0.22
Frequent/Severe	99(5.8)	0.99(0.79-1.24)	0.93	0.99(0.79-1.23)	0.90	0.98(0.79-1.23)	0.87	0.98(0.78-1.22)	0.84
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	715(5.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	265(6.1)	1.11(0.95-1.31)	0.18	1.11(0.95-1.31)	0.19	1.11(0.95-1.30)	0.19	1.10(0.94-1.30)	0.22
Frequent/Severe	92(5.4)	0.98(0.78-1.23)	0.86	0.98(0.78-1.23)	0.84	0.97(0.77-1.22)	0.80	0.97(0.77-1.22)	0.77
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	28(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	17(0.4)	0.91(0.50-1.66)	0.76	0.90(0.49-1.64)	0.73	0.87(0.48-1.60)	0.66	0.87(0.48-1.60)	0.66
Frequent/Severe	10(0.6)	1.36(0.66-2.81)	0.40	1.32(0.64-2.73)	0.45	1.36(0.66-2.83)	0.41	1.38(0.66-2.85)	0.39
<b>CVE at 3 months</b>									
None/Mild	392(6.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	289(6.6)	1.11(0.95-1.29)	0.18	1.11(0.95-1.29)	0.19	1.11(0.95-1.29)	0.18	1.10(0.95-1.28)	0.21

Frequent/Severe	105(6.1)	1.02(0.82-1.27)	0.85	1.01(0.82-1.26)	0.90	1.01(0.82-1.26)	0.90	1.01(0.81-1.25)	0.94
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	856(13.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	484(11.4)	0.83(0.74-0.93)	0.002	0.82(0.73-0.92)	0.001	0.82(0.72-0.94)	0.004	0.82(0.72-0.94)	<0.001
Frequent/Severe	175(10.4)	0.75(0.63-0.89)	0.001	0.73(0.61-0.87)	<0.001	0.76(0.62-0.92)	0.004	0.76(0.63-0.92)	0.004
<b>All-cause death at 3 months</b>									
None/Mild	98(1.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	42(1.0)	0.64(0.45-0.92)	0.02	0.65(0.45-0.93)	0.02	0.67(0.47-0.97)	0.03	0.69(0.48-0.99)	0.04
Frequent/Severe	13(0.8)	0.51(0.28-0.90)	0.02	0.50(0.28-0.89)	0.02	0.55(0.31-0.98)	0.04	0.57(0.32-1.01)	0.054
<b>Stroke at 1 year</b>									
None/Mild	612(9.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	417(9.6)	1.03(0.91-1.16)	0.67	1.02(0.90-1.16)	0.72	1.02(0.90-1.15)	0.80	1.01(0.89-1.15)	0.84
Frequent/Severe	160(9.3)	1.00(0.84-1.18)	0.95	0.99(0.83-1.17)	0.86	0.97(0.81-1.15)	0.70	0.97(0.81-1.16)	0.74
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	568(8.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	384(8.8)	1.02(0.90-1.16)	0.78	1.02(0.89-1.16)	0.82	1.01(0.89-1.15)	0.90	1.01(0.88-1.15)	0.93
Frequent/Severe	145(8.5)	0.97(0.81-1.17)	0.75	0.96(0.80-1.16)	0.68	0.95(0.79-1.14)	0.56	0.95(0.79-1.14)	0.58

<b>Hemorrhage stroke at 1 year</b>									
None/Mild	53(0.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	34(0.8)	0.96(0.63-1.48)	0.86	0.95(0.62-1.47)	0.83	0.90(0.59-1.39)	0.65	0.91(0.59-1.40)	0.65
Frequent/Severe	19(1.1)	1.36(0.81-2.30)	0.25	1.34(0.79-2.26)	0.28	1.27(0.75-2.16)	0.37	1.29(0.76-2.19)	0.35
<b>CVE at 1 year</b>									
None/Mild	644(9.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	438(10.1)	1.03(0.91-1.16)	0.68	1.02(0.90-1.15)	0.75	1.02(0.90-1.15)	0.81	1.01(0.90-1.14)	0.84
Frequent/Severe	171(10.0)	1.01(0.85-1.20)	0.90	1.00(0.84-1.18)	0.98	0.98(0.83-1.16)	0.82	0.99(0.83-1.17)	0.87
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	680(11.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	374(9.1)	0.81(0.71-0.92)	0.002	0.79(0.69-0.91)	<0.001	0.79(0.68-0.91)	0.001	0.79(0.68-0.91)	0.001
Frequent/Severe	164(10.0)	0.90(0.75-1.08)	0.26	0.86(0.72-1.03)	0.11	0.90(0.74-1.10)	0.29	0.90(0.74-1.09)	0.29
<b>All-cause death at 1 year</b>									
None/Mild	219(3.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	121(2.8)	0.83(0.66-1.03)	0.10	0.83(0.66-1.03)	0.09	0.85(0.68-1.07)	0.16	0.85(0.68-1.07)	0.16
Frequent/Severe	42(2.5)	0.73(0.52-1.01)	0.06	0.70(0.50-0.97)	0.03	0.76(0.55-1.06)	0.11	0.76(0.54-1.05)	0.10

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

\*A total of 12304 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 299 patients without available mRS score at 3-month follow-up.

\*\*A total of 11932 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 671 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; AIS, acute ischemic attack; TIA, transient ischemic attack; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.

**Table S5. The associations between BG-EPVS and clinical outcomes of patients with small arterial occlusion**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	84(4.6)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	37(4.8)	1.05(0.71-1.54)	0.82	1.06(0.71-1.58)	0.78	0.97(0.64-1.46)	0.87	1.01(0.68-1.52)	0.95
Frequent/Severe	6(2.7)	0.59(0.26-1.34)	0.20	0.59(0.25-1.37)	0.22	0.48(0.20-1.15)	0.10	0.55(0.24-1.30)	0.17
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	79(4.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	34(4.4)	1.02(0.68-1.53)	0.91	1.04(0.69-1.58)	0.85	0.99(0.65-1.52)	0.96	1.01(0.67-1.54)	0.95
Frequent/Severe	5(2.3)	0.52(0.21-1.28)	0.15	0.53(0.21-1.32)	0.17	0.46(0.18-1.18)	0.11	0.50(0.20-1.28)	0.15
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	5(0.40)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	2(0.2)	1.91(0.51-7.10)	0.34	1.82(0.47-7.09)	0.39	1.11(0.29-4.31)	0.88	1.46(0.37-5.75)	0.59
Frequent/Severe	3(0.7)	1.67(0.20-14.25)	0.64	1.56(0.17-14.58)	0.70	0.74(0.08-7.00)	0.79	1.28(0.14-12.06)	0.83
<b>CVE at 3 months</b>									
None/Mild	88(4.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	38(4.9)	1.03(0.70-1.50)	0.89	1.03(0.70-1.53)	0.87	0.95(0.63-1.42)	0.79	0.99(0.67-1.47)	0.97

Frequent/Severe	6(2.7)	0.56(0.24-1.28)	0.17	0.56(0.24-1.29)	0.17	0.46(0.19-1.10)	0.08	0.52(0.22-1.22)	0.13
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	95(5.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	63(8.3)	1.63(1.17-2.27)	0.004	1.38(0.98-1.94)	0.06	1.17(0.81-1.70)	0.41	1.29(0.90-1.86)	0.17
Frequent/Severe	24(11.0)	2.23(1.39-3.58)	<0.001	1.60(0.98-2.62)	0.06	1.38(0.80-2.40)	0.25	1.70(0.99-2.90)	0.052
<b>All-cause death at 3 months</b>									
None/Mild	4(0.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	3(0.4)	1.78(0.40-7.97)	0.45	1.79(0.38-8.44)	0.46	1.35(0.26-6.92)	0.72	1.80(0.37-8.81)	0.47
Frequent/Severe	0(0.0)	-	-	-	-	-	-	-	-
<b>Stroke at 1 year</b>									
None/Mild	135(7.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	63(8.1)	1.11(0.83-1.50)	0.48	1.09(0.80-1.49)	0.58	0.88(0.65-1.21)	0.45	1.03(0.76-1.41)	0.85
Frequent/Severe	15(6.8)	0.92(0.54-1.57)	0.75	0.88(0.51-1.52)	0.64	0.62(0.35-1.09)	0.10	0.85(0.49-1.48)	0.56
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	123(6.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	55(7.1)	1.06(0.77-1.46)	0.70	1.04(0.75-1.44)	0.82	0.88(0.63-1.23)	0.45	1.00(0.71-1.39)	0.98
Frequent/Severe	9(4.1)	0.60(0.31-1.19)	0.14	0.57(0.29-1.14)	0.11	0.43(0.21-0.87)	0.02	0.56(0.28-1.11)	0.10
<b>Hemorrhage stroke at 1 year</b>									

None/Mild	12(0.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	9(1.2)	1.79(0.76-4.26)	0.19	1.86(0.76-4.55)	0.17	1.17(0.48-2.85)	0.73	1.62(0.66-3.99)	0.30
Frequent/Severe	6(2.7)	4.27(1.60-11.37)	0.004	4.61(1.59-13.35)	0.005	2.40(0.82-7.08)	0.11	4.29(1.45-12.71)	0.009
<b>CVE at 1 year</b>									
None/Mild	141(7.7)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	66(8.5)	1.12(0.83-1.50)	0.46	1.10(0.81-1.48)	0.56	0.88(0.65-1.20)	0.42	1.03(0.76-1.40)	0.83
Frequent/Severe	16(7.2)	0.94(0.56-1.57)	0.81	0.90(0.53-1.53)	0.69	0.63(0.36-1.09)	0.10	0.86(0.50-1.48)	0.59
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	49(6.6)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	17(8.3)	1.44(1.00-2.08)	0.048	1.02(0.70-1.49)	0.92	0.80(0.53-1.20)	0.28	0.91(0.61-1.35)	0.63
Frequent/Severe		1.87(1.09-3.22)	0.02	0.97(0.55-1.71)	0.92	0.81(0.44-1.48)	0.49	1.02(0.56-1.84)	0.95
<b>All-cause death at 1 year</b>									
None/Mild	14(0.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	12(1.6)	2.04(0.95-4.42)	0.07	1.66(0.76-3.67)	0.21	1.25(0.56-2.78)	0.59	1.52(0.69-3.38)	0.30
Frequent/Severe	8(3.6)	4.84(2.03-11.55)	<0.001	3.31(1.32-8.30)	0.01	2.18(0.84-5.65)	0.11	3.13(1.23-7.99)	0.02

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD,

index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

\*A total of 2798 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 41 patients without available mRS score at 3-month follow-up.

\*\*A total of 2744 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 95 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.



**Table S6. The associations between CSO-EPVS and clinical outcomes of patients with small arterial occlusion**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	71(4.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	42(4.3)	0.87(0.59-1.27)	0.47	0.89(0.61-1.30)	0.54	0.89(0.61-1.32)	0.57	0.86(0.59-1.27)	0.46
Frequent/Severe	14(3.3)	0.67(0.38-1.19)	0.17	0.69(0.39-1.23)	0.21	0.66(0.37-1.17)	0.16	0.64(0.36-1.15)	0.13
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	66(4.6)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	41(4.2)	0.91(0.62-1.35)	0.64	0.94(0.63-1.38)	0.74	0.94(0.63-1.40)	0.76	0.91(0.62-1.35)	0.65
Frequent/Severe	11(2.6)	0.57(0.30-1.07)	0.08	0.59(0.31-1.12)	0.10	0.57(0.30-1.08)	0.09	0.55(0.29-1.05)	0.07
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	5(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	2(0.2)	0.59(0.11-3.03)	0.53	0.57(0.11-2.95)	0.50	0.62(0.12-3.23)	0.57	0.55(0.11-2.83)	0.47
Frequent/Severe	3(0.7)	2.06(0.49-8.62)	0.32	1.96(0.47-8.24)	0.36	1.65(0.38-7.08)	0.50	1.61(0.38-6.88)	0.52
<b>CVE at 3 months</b>									
None/Mild	73(5.1)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	44(4.5)	0.89(0.61-1.29)	0.52	0.91(0.62-1.32)	0.60	0.90(0.62-1.32)	0.60	0.88(0.60-1.28)	0.50

Frequent/Severe	15(3.6)	0.70(0.40-1.22)	0.21	0.72(0.41-1.26)	0.25	0.69(0.39-1.20)	0.19	0.68(0.39-1.18)	0.17
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	96(6.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	59(6.1)	0.90(0.64-1.26)	0.53	0.93(0.66-1.30)	0.66	0.94(0.65-1.35)	0.74	0.89(0.62-1.27)	0.51
Frequent/Severe	27(6.5)	0.96(0.62-1.50)	0.86	0.96(0.62-1.50)	0.86	0.88(0.54-1.41)	0.59	0.86(0.53-1.38)	0.53
<b>All-cause death at 3 months</b>									
None/Mild	5(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	1(0.1)	0.29(0.03-2.52)	0.26	0.31(0.04-2.62)	0.28	0.29(0.03-2.59)	0.27	0.31(0.04-2.71)	0.29
Frequent/Severe	1(0.2)	0.68(0.08-5.86)	0.73	0.72(0.08-6.18)	0.76	0.77(0.09-6.86)	0.81	0.75(0.09-6.61)	0.80
<b>Stroke at 1 year</b>									
None/Mild	118(8.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	69(7.1)	0.86(0.64-1.15)	0.30	0.86(0.64-1.16)	0.34	0.89(0.66-1.20)	0.43	0.84(0.62-1.13)	0.25
Frequent/Severe	26(6.2)	0.74(0.49-1.14)	0.17	0.75(0.49-1.15)	0.19	0.71(0.46-1.09)	0.11	0.70(0.46-1.08)	0.11
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	109(7.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	61(6.2)	0.84(0.61-1.15)	0.26	0.85(0.62-1.16)	0.30	0.87(0.63-1.19)	0.38	0.83(0.60-1.14)	0.24
Frequent/Severe	19(4.5)	0.60(0.37-0.98)	0.04	0.61(0.37-0.99)	0.046	0.58(0.35-0.95)	0.03	0.58(0.35-0.94)	0.03

<b>Hemorrhage stroke at 1 year</b>									
None/Mild	11(0.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	9(0.9)	1.20(0.50-2.89)	0.69	1.18(0.49-2.84)	0.72	1.27(0.51-3.12)	0.61	1.10(0.45-2.67)	0.83
Frequent/Severe	7(1.7)	2.17(0.84-5.61)	0.11	2.10(0.81-5.43)	0.13	1.95(0.75-5.09)	0.17	1.88(0.72-4.90)	0.19
<b>CVE at 1 year</b>									
None/Mild	123(8.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	72(7.4)	0.86(0.64-1.15)	0.30	0.87(0.65-1.16)	0.34	0.89(0.66-1.19)	0.42	0.84(0.63-1.13)	0.25
Frequent/Severe	28(6.7)	0.77(0.51-1.16)	0.21	0.78(0.51-1.17)	0.23	0.73(0.48-1.11)	0.14	0.73(0.48-1.10)	0.13
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	91(6.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	37(3.9)	0.58(0.39-0.86)	0.007	0.59(0.40-0.88)	0.009	0.59(0.39-0.90)	0.01	0.56(0.37-0.84)	0.006
Frequent/Severe	21(5.2)	0.78(0.48-1.26)	0.31	0.74(0.45-1.21)	0.23	0.65(0.38-1.09)	0.10	0.64(0.38-1.07)	0.09
<b>All-cause death at 1 year</b>									
None/Mild	18(1.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	9(0.9)	0.74(0.33-1.64)	0.45	0.75(0.34-1.67)	0.48	0.78(0.35-1.78)	0.56	0.73(0.33-1.64)	0.45
Frequent/Severe	7(1.7)	1.33(0.55-3.17)	0.53	1.27(0.53-3.05)	0.59	1.20(0.49-2.93)	0.69	1.14(0.47-2.78)	0.77

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

\*A total of 2798 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 41 patients without available mRS score at 3-month follow-up.

\*\*A total of 2744 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 95 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.

**Table S7. The associations between BG-EPVS and clinical outcomes of patients with cerebral small vessel disease**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	161(6.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	115(6.5)	1.05(0.82-1.33)	0.71	1.00(0.78-1.27)	0.97	0.99(0.78-1.27)	0.96	1.01(0.79-1.28)	0.96
Frequent/Severe	24(5.4)	0.87(0.56-1.33)	0.51	0.76(0.49-1.18)	0.22	0.75(0.48-1.17)	0.20	0.82(0.53-1.26)	0.37
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	155(6.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	108(6.1)	1.02(0.80-1.31)	0.87	0.97(0.76-1.25)	0.82	0.97(0.76-1.25)	0.83	0.99(0.77-1.27)	0.91
Frequent/Severe	22(5.0)	0.83(0.53-1.29)	0.40	0.73(0.46-1.15)	0.17	0.72(0.45-1.14)	0.16	0.75(0.47-1.18)	0.21
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	10(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	9(0.5)	1.32(0.54-3.24)	0.55	1.22(0.49-3.03)	0.68	1.29(0.52-3.24)	0.59	1.19(0.49-2.92)	0.70
Frequent/Severe	2(0.5)	1.17(0.26-5.33)	0.84	0.99(0.21-4.71)	0.99	0.93(0.19-4.46)	0.93	1.64(0.43-6.17)	0.47
<b>CVE at 3 months</b>									
None/Mild	163(6.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	119(6.7)	1.07(0.85-1.36)	0.57	1.01(0.79-1.28)	0.94	1.01(0.80-1.29)	0.92	1.03(0.81-1.31)	0.81

Frequent/Severe	24(5.4)	0.86(0.56-1.31)	0.48	0.74(0.48-1.15)	0.18	0.74(0.47-1.15)	0.18	0.80(0.52-1.23)	0.31
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	330(13.1)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	247(14.3)	1.11(0.93-1.33)	0.25	0.97(0.81-1.16)	0.73	1.01(0.83-1.24)	0.92	1.04(0.85-1.27)	0.71
Frequent/Severe	56(13.2)	1.01(0.74-1.36)	0.97	0.74(0.54-1.02)	0.06	0.84(0.59-1.18)	0.31	0.95(0.68-1.33)	0.76
<b>All-cause death at 3 months</b>									
None/Mild	30(1.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	18(1.0)	0.88(0.49-1.57)	0.66	0.68(0.37-1.22)	0.19	0.73(0.40-1.34)	0.31	0.75(0.42-1.35)	0.34
Frequent/Severe	8(1.8)	1.56(0.71-3.40)	0.27	0.87(0.39-1.92)	0.72	1.11(0.48-2.54)	0.81	1.11(0.49-2.53)	0.81
<b>Stroke at 1 year</b>									
None/Mild	256(9.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	174(9.9)	1.00(0.82-1.21)	0.99	0.96(0.79-1.17)	0.71	0.95(0.78-1.16)	0.64	0.97(0.80-1.18)	0.79
Frequent/Severe	43(9.7)	0.98(0.71-1.36)	0.91	0.90(0.64-1.25)	0.51	0.84(0.60-1.17)	0.31	0.95(0.68-1.31)	0.73
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	236(9.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	160(9.1)	1.00(0.81-1.22)	0.96	0.95(0.77-1.16)	0.62	0.94(0.77-1.16)	0.58	0.97(0.79-1.18)	0.73
Frequent/Severe	37(9.4)	0.92(0.65-1.30)	0.62	0.82(0.57-1.16)	0.26	0.78(0.54-1.12)	0.17	0.85(0.59-1.20)	0.35

<b>Hemorrhage stroke at 1 year</b>									
None/Mild	24(0.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	17(1.0)	1.04(0.56-1.93)	0.90	1.11(0.59-2.09)	0.74	1.07(0.57-2.02)	0.84	1.04(0.55-1.93)	0.91
Frequent/Severe	6(1.4)	1.47(0.60-3.60)	0.40	1.71(0.68-4.33)	0.26	1.33(0.52-3.39)	0.55	1.92(0.80-4.58)	0.14
<b>CVE at 1 year</b>									
None/Mild	269(10.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	184(10.4)	1.01(0.83-1.21)	0.95	0.97(0.80-1.17)	0.74	0.96(0.79-1.17)	0.69	0.99(0.82-1.19)	0.87
Frequent/Severe	45(10.2)	0.98(0.71-1.34)	0.89	0.89(0.64-1.23)	0.48	0.85(0.61-1.18)	0.32	0.94(0.69-1.30)	0.72
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	266(10.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	203(12.2)	1.14(0.94-1.38)	0.19	0.92(0.76-1.13)	0.44	0.96(0.77-1.20)	0.72	0.99(0.80-1.22)	0.90
Frequent/Severe	49(12.1)	1.13(0.81-1.56)	0.47	0.71(0.51-0.99)	0.045	0.80(0.56-1.15)	0.22	0.92(0.65-1.31)	0.65
<b>All-cause death at 1 year</b>									
None/Mild	80(3.1)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	59(3.3)	1.08(0.77-1.51)	0.66	0.86(0.62-1.21)	0.40	0.89(0.63-1.25)	0.50	0.91(0.65-1.27)	0.57
Frequent/Severe	23(5.2)	1.70(1.07-2.70)	0.02	1.04(0.65-1.67)	0.88	1.11(0.68-1.80)	0.67	1.24(0.77-2.01)	0.38

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

\*A total of 4663 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 122 patients without available mRS score at 3-month follow-up.

\*\*A total of 4522 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 263 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.



**Table S8. The associations between CSO-EPVS and clinical outcomes of patients with cerebral small vessel disease**

Outcomes	Events, n(%)	Model 1		Model 2		Model 3		Model 4	
		HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value	HR/OR(95% CI)	P value
<b>Stroke at 3 months</b>									
None/Mild	141(6.3)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	107(6.1)	0.97(0.75-1.25)	0.80	0.98(0.76-1.26)	0.89	1.00(0.78-1.29)	0.99	1.01(0.78-1.29)	0.97
Frequent/Severe	52(6.7)	1.07(0.78-1.47)	0.67	1.09(0.79-1.49)	0.62	1.09(0.79-1.50)	0.62	1.04(0.75-1.43)	0.82
<b>Ischaemic Stroke at 3 months</b>									
None/Mild	134(6.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	102(5.8)	0.97(0.75-1.26)	0.83	0.99(0.76-1.27)	0.91	1.00(0.77-1.29)	0.99	0.99(0.77-1.28)	0.93
Frequent/Severe	49(6.3)	1.06(0.77-1.47)	0.72	1.08(0.78-1.49)	0.66	1.08(0.78-1.50)	0.66	1.03(0.74-1.43)	0.86
<b>Hemorrhage stroke at 3 months</b>									
None/Mild	9(0.4)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	6(0.3)	0.85(0.30-2.39)	0.76	0.85(0.30-2.40)	0.76	0.93(0.33-2.65)	0.89	1.17(0.45-3.05)	0.75
Frequent/Severe	6(0.8)	1.93(0.69-5.42)	0.21	1.90(0.68-5.35)	0.22	1.91(0.66-5.50)	0.23	1.87(0.66-5.33)	0.24
<b>CVE at 3 months</b>									
None/Mild	146(6.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	108(6.1)	0.94(0.74-1.21)	0.65	0.96(0.75-1.23)	0.73	0.97(0.76-1.25)	0.84	0.98(0.77-1.26)	0.88

Frequent/Severe	52(6.7)	1.04(0.75-1.42)	0.83	1.05(0.76-1.44)	0.78	1.05(0.76-1.44)	0.77	1.03(0.75-1.41)	0.87
<b>Disability(mRS 3-5) at 3 months*</b>									
None/Mild	329(15.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	212(12.4)	0.80(0.66-0.96)	0.02	0.81(0.67-0.98)	0.03	0.81(0.66-0.99)	0.04	0.80(0.66-0.98)	0.03
Frequent/Severe	92(12.1)	0.78(0.61-1.00)	0.045	0.78(0.61-1.00)	0.049	0.80(0.61-1.05)	0.10	0.76(0.58-0.99)	0.045
<b>All-cause death at 3 months</b>									
None/Mild	33(1.5)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	17(1.0)	0.66(0.37-1.18)	0.16	0.71(0.39-1.27)	0.24	0.75(0.41-1.38)	0.36	0.76(0.42-1.38)	0.36
Frequent/Severe	6(0.8)	0.53(0.22-1.25)	0.15	0.54(0.23-1.28)	0.16	0.61(0.25-1.49)	0.28	0.74(0.32-1.69)	0.48
<b>Stroke at 1 year</b>									
None/Mild	226(10.0)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	167(9.5)	0.94(0.77-1.15)	0.57	0.95(0.78-1.16)	0.63	0.98(0.80-1.20)	0.83	0.96(0.79-1.16)	0.65
Frequent/Severe	80(10.3)	1.02(0.79-1.32)	0.86	1.03(0.80-1.33)	0.82	1.05(0.81-1.35)	0.73	0.99(0.77-1.27)	0.92
<b>Ischaemic Stroke at 1 year</b>									
None/Mild	208(9.2)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	152(8.6)	0.93(0.76-1.15)	0.51	0.94(0.77-1.16)	0.58	0.97(0.78-1.19)	0.76	0.94(0.76-1.15)	0.54
Frequent/Severe	73(9.4)	1.02(0.78-1.33)	0.91	1.02(0.78-1.34)	0.87	1.04(0.80-1.36)	0.77	0.98(0.75-1.28)	0.89

<b>Hemorrhage stroke at 1 year</b>									
None/Mild	21(0.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	16(0.9)	0.97(0.51-1.86)	0.93	0.96(0.50-1.85)	0.91	0.99(0.51-1.91)	0.98	1.05(0.56-1.98)	0.88
Frequent/Severe	10(1.3)	1.37(0.65-2.91)	0.41	1.37(0.64-2.90)	0.42	1.36(0.63-2.92)	0.43	1.44(0.69-3.01)	0.33
<b>CVE at 1 year</b>									
None/Mild	242(10.8)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	173(9.8)	0.91(0.75-1.11)	0.35	0.92(0.76-1.12)	0.41	0.94(0.78-1.15)	0.57	0.93(0.77-1.12)	0.44
Frequent/Severe	83(10.7)	0.99(0.77-1.27)	0.94	1.00(0.78-1.28)	0.98	1.01(0.79-1.30)	0.94	0.97(0.76-1.24)	0.81
<b>Disability(mRS 3-5) at 1 year**</b>									
None/Mild	273(12.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	161(9.7)	0.72(0.59-0.89)	0.002	0.73(0.59-0.90)	0.004	0.73(0.58-0.91)	0.006	0.71(0.57-0.89)	0.003
Frequent/Severe	84(11.3)	0.86(0.66-1.11)	0.24	0.85(0.65-1.10)	0.22	0.88(0.66-1.17)	0.38	0.84(0.63-1.11)	0.21
<b>All-cause death at 1 year</b>									
None/Mild	88(3.9)	Ref.(1.00)		Ref.(1.00)		Ref.(1.00)		Ref.(1.00)	
Moderate	53(3.0)	0.77(0.55-1.08)	0.13	0.81(0.57-1.13)	0.21	0.85(0.60-1.20)	0.36	0.83(0.59-1.17)	0.28
Frequent/Severe	21(2.7)	0.68(0.42-1.10)	0.12	0.68(0.42-1.10)	0.12	0.76(0.47-1.24)	0.27	0.84(0.54-1.32)	0.45

Model 1: unadjusted;

Model 2: adjusted for age and sex;

Model 3: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST, lacunes, PV-WMH, and D-WMH.

Model 4: adjusted for age, sex, BMI, SBP, DBP, mRS, NIHSS, alcohol intake, tobacco intake, diabetes, hypertension, hyperlipidemia, stroke, CAD, index event, TOAST.

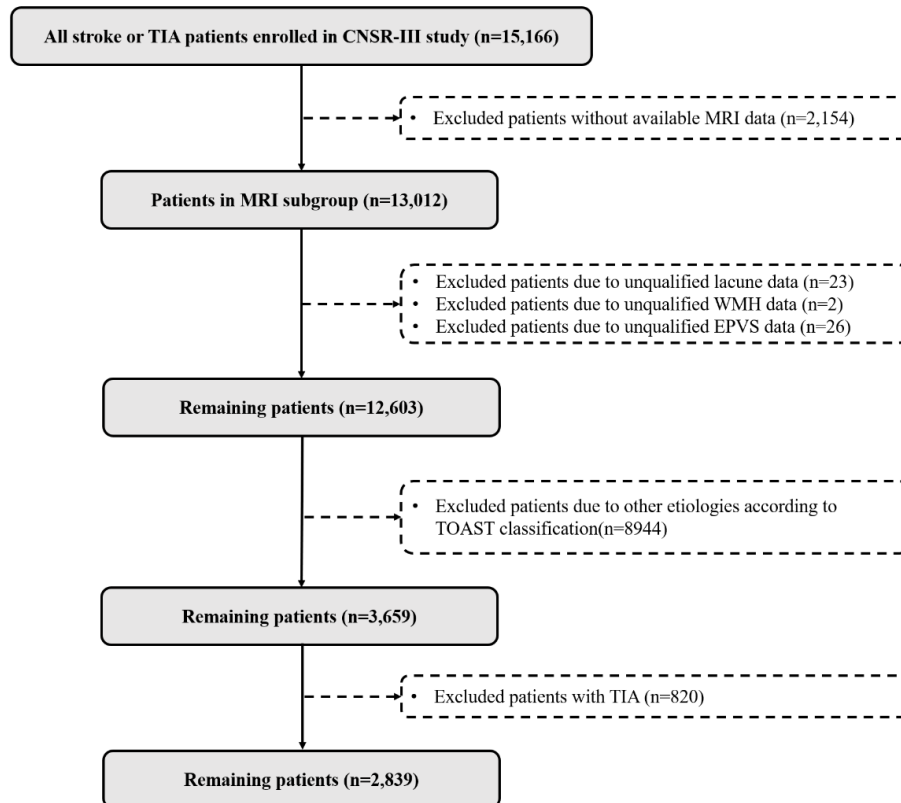
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\*\*A total of 4522 patients with AIS/TIA were included in the analyses of the association between EPVS and disability because of 263 patients without available mRS score at 1-year follow-up.

HR, hazard ratio; OR, odds ratio; CI, confidence interval, Ref, reference; CVE, combined vascular event; EPVS, enlarged perivascular spaces; BG-EPVS, EPVS in basal ganglia; CSO-EPVS, EPVS in centrum semiovale; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; CAD: coronary artery disease; NIHSS, National Institutes of Health Stroke Scale score; mRS, modified Rankin scale; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; WMH, white matter hyperintensity; D-WMH, deep-WMH; PV-WMH, periventricular-WMH.

**Figure S1. The flowchart of the selection of patients with SAO**

CNSR-III, the China National Stroke Registry III; TIA, transient ischemic attack; WMH, white matter hyperintensity; EPVS, enlarged perivascular spaces; TOAST, Trial of Org 10,172 in Acute Stroke Treatment; SAO, small arterial occlusion.



**Figure S2. The flowchart of the selection of patients with CSVD**

CNSR-III, the China National Stroke Registry III; TIA, transient ischemic attack; WMH, white matter hyperintensity; EPVS, enlarged perivascular spaces; CMBs, cerebral microbleeds; CSVD, cerebral small vessel disease.

