ISSUES OF REHABILITATION AND RECOVERY

Cognition and Dementia

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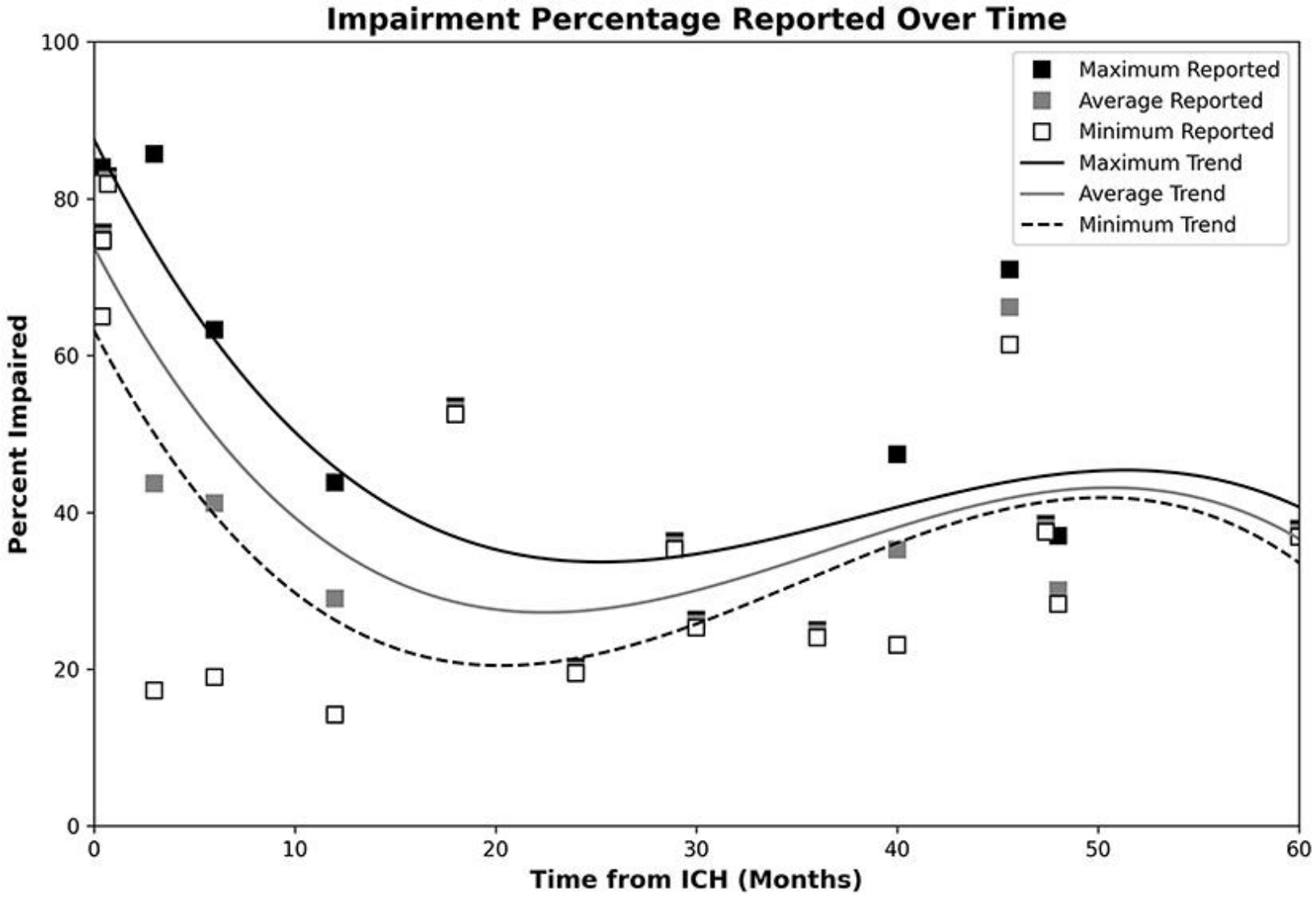
Disclosures

- Research grants from
  - Taiwan National Science and Technology Council
  - National Taiwan University Hospital

Dynamic course of cognitive impairment after ICH



Potter T, Lioutas VA, Tano M, et al. Cognitive Impairment After Intracerebral Hemorrhage: A Systematic Review of Current Evidence and Knowledge Gaps. Front Neurol 2021;12:716632.

(Variable) Incidence of post-ICH dementia

Different Dx criteria

Early of delayed onset

Small sample size

Study, year	Country	Design	Study period	Criteria for dementia diagnosis	Dementia onset	Sample size, *n*	Cumulative incidence of dementia
Barba et al., 2000 [34]	Spain	Prospective cohort*	1994–1995	DSM-IV criteria; NINDS-AIREN criteria for VaD	Early (within 3 months post-ICH)	29	27.6% at 3 months
Maduriera et al., 2001 [35]	Portugal	Prospective cohort	1995–1997	DSM-IV criteria; NINDS-AIREN criteria for VaD	Early (within 3 months post-ICH)	55	5.5% at 3 months
Altieri et al., 2004 [42]	Italy	Prospective cohort	1995–1997	ICD-10 criteria; NINCDS-ADRDA criteria for AD and NINDS-AIREN criteria for VaD	Delayed (≥6 months post-ICH)	4	25.0% at 4 years
Tang et al., 2004 [36]	Hong Kong	Prospective cohort	Not reported	DSM-IV criteria	Early (within 3 months post-ICH)	23	17.3% at 3 months
de Koning et al., 2005 [40]	Netherlands	Prospective cohort*	2000–2002	DSM-IV criteria; subclassified according to NINDS-AIREN criteria	Delayed (≥3 months post-ICH)	19	42.1% at 9 months
Ihle-Hansen et al., 2011 [41]	Norway	Prospective cohort	2007–2008	ICD-10 criteria	Anytime post-ICH	16	43.8% at 1 year
Arauz et al., 2014 [37]	Mexico	Prospective cohort	2005	DSM-IV criteria; NINDS-AIREN criteria for VaD	Early (within 3 months post-ICH)	14	14.3% at 3 months
Biffi et al., 2016 [4]†	USA	Prospective cohort	2006–2013	ICD-9 codes in electronic medical records and TICS-m score < 20	Early (within 6 months post-ICH)	738	19.0% at 6 months
					Delayed (≥6 months post-ICH)	435	32.0% at 5 years (5.8% yearly)
Moulin et al., 2016 [5]	France	Prospective cohort	2004–2009	NIA-AA criteria for all-cause dementia	Delayed (≥6 months post-ICH)	218	14.2% at 1 year; 19.8% at 2 years; 24.5% at 3 years; 28·3% at 4 years
Planton et al., 2017 [44]	France	Prospective case-control	2012–2017	VASCOG criteria for major VCD	Delayed (≥3 months post-ICH)	40	2.5% at 4 months
Xiong et al., 2019 [21]	USA	Prospective cohort	2006–2017	NIA-AA criteria for all-cause dementia	Delayed (≥6 months post-ICH)	97	37.4% at 5 years
Pendlebury et al., 2019 [6]	UK	Prospective cohort	2002–2012	MMSE score persistently < 24 or DSM-IV criteria	Anytime post-ICH	126	18.3% at 5 years
Dros et al., 2020 [38]	Poland	Prospective cohort	2015–2018	DSM-5 criteria	Anytime post-ICH	23	26.1% at 3 months; 45.5% at 1 year
Pasi et al., 2021 [22]†	USA	Prospective cohort	1998–2017	ICD-9/10 codes in electronic medical records and TICS-m score < 20	Delayed (≥3 months post-ICH)	612	35.0% at 4 years
Ismail et al., 2022 [43]	Hong Kong	Prospective cohort	2009–2010	DSM-IV criteria	Delayed (≥6 months post-ICH)	44	6.8% at 5 years

Zhang Z, Lim MJR. Incident Dementia After Spontaneous Intracerebral Hemorrhage. J Alzheimers Dis 2024;99:41-51.

JAMA Neurology | Original Investigation

Risk Factors Associated With Early vs Delayed Dementia After Intracerebral Hemorrhage

N=738

19.0% had delayed dementia (>6M)

Alessandro Biffi, MD; Destiny Bailey, BS; Christopher D. Anderson, MD, MMSc; Alison M. Ayres, BA; Edip M. Gurol, MD; Steven M. Greenberg, MD, PhD; Jonathan Rosand, MD, MSc; Anand Viswanathan, MD, PhD

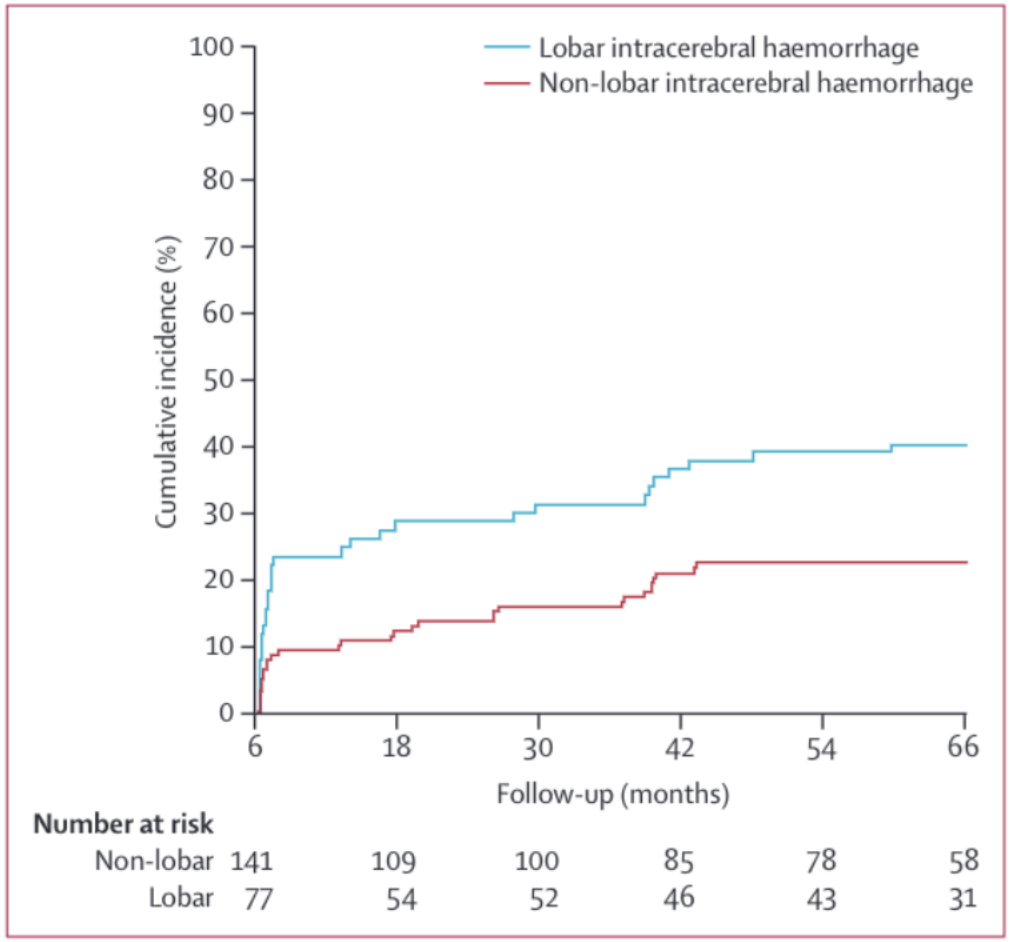
Risk Factor	Post-ICH Dementia Risk, HR (95% CI)				*P* Value for Heterogeneity
	Early	*P* Value	Delayed	*P* Value	
Model 1[a]					
No. of patients	619		435		
Age	1.02 (1.00-1.04)	.03	1.01 (1.00-1.01)	.05	.78
Educational level (≥10 y)	0.89 (0.61-1.30)	.55	0.60 (0.40-0.89)	.01	<.001
African American race	1.22 (0.96-1.55)	.11	1.48 (1.09-2.02)	.01	.55
Incident mood symptoms	0.66 (0.04-11.11)	.77	1.29 (1.02-1.63)	.04	.01
ICH volume (per 10-mL increase)	1.47 (1.09-1.97)	.01	1.10 (0.70-1.73)	.68	<.001
Lobar ICH location	2.04 (1.06-3.91)	.03	1.33 (0.25-7.03)	.74	.02
CT-WMD severity	1.34 (0.23-7.76)	.74	1.70 (1.07-2.71)	.03	.04

Biffi A, Bailey D, Anderson CD, et al. Risk Factors Associated With Early vs Delayed Dementia After Intracerebral Hemorrhage. JAMA Neurol 2016;73:969-976.

Dementia risk after spontaneous intracerebral haemorrhage: a prospective cohort study

PITCH cohort (2004-2009, N=560)

Solène Moulin, Julien Labreuche, Stéphanie Bombois, Costanza Rossi, Gregoire Boulouis, Hilde Hénon, Alain Duhamel, Didier Leys, Charlotte Cordonnier



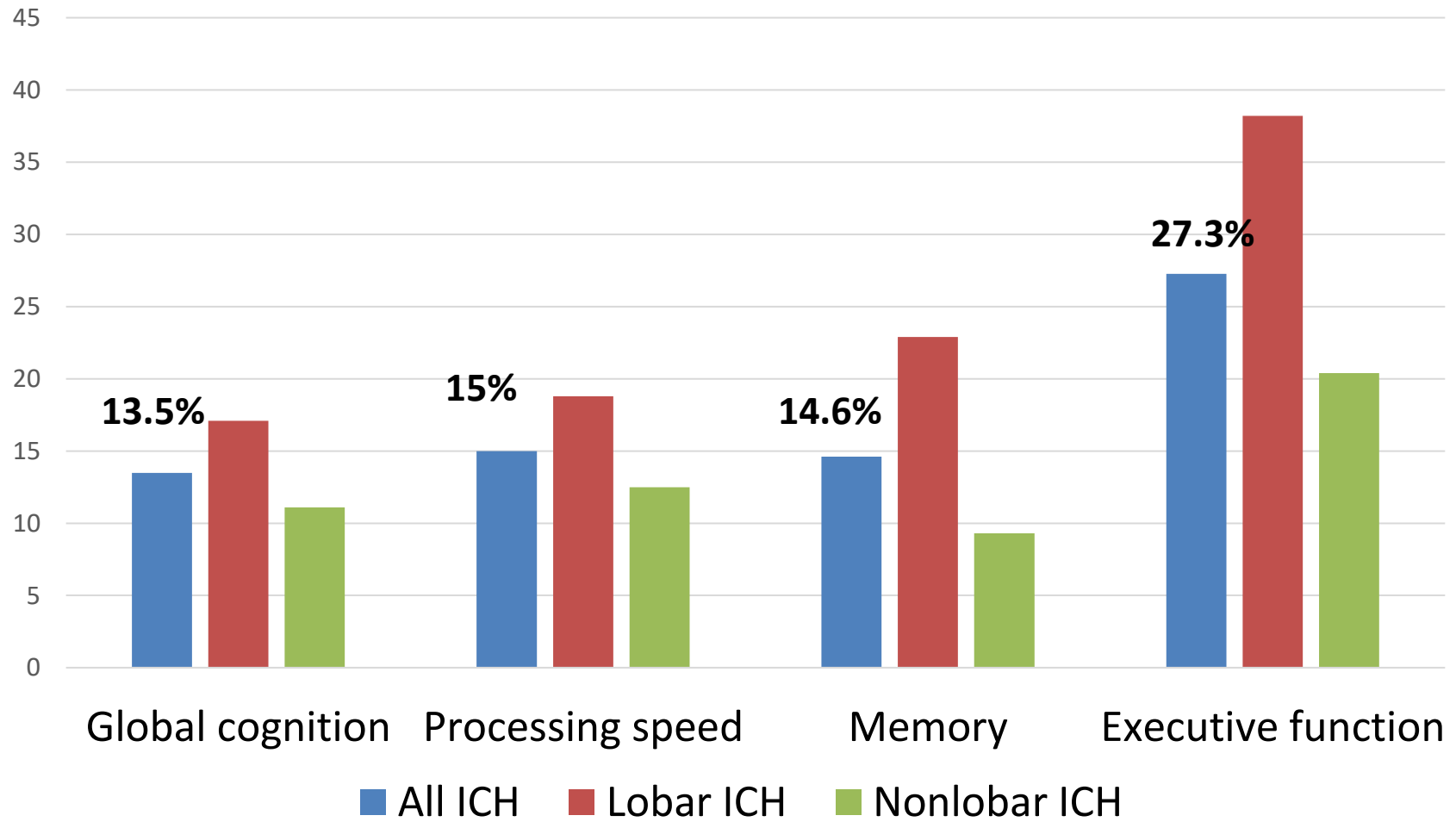
- **Incidence**:
  1-year post ICH: 14.2%
  2-year post ICH: 19.8%
  3-year post ICH: 24.5%
  4-year post ICH: 28.3%
- Age, previous stroke/TIA, NIHSS

	1 year post-intracerebral haemorrhage*	4 years post-intracerebral haemorrhage*
History of previous stroke or transient ischaemic attack		
No	14·6% (10·0–20·1)	21·8% (16·1–28·1)
Yes	15·2% (5·4–29·5)	45·5 % (27·8–61·6)
Intracerebral haemorrhage location		
Lobar	23·4% (14·6–33·3)	35·1% (24·6–45·7)
Non-lobar	9·2% (5·1–14·7)	20·2% (14·0–27·3)

Moulin S, Labreuche J, Bombois S, et al. Dementia risk after spontaneous intracerebral haemorrhage: a prospective cohort study. Lancet Neurol 2016;15:820-829.

Cognitive profiles after ICH

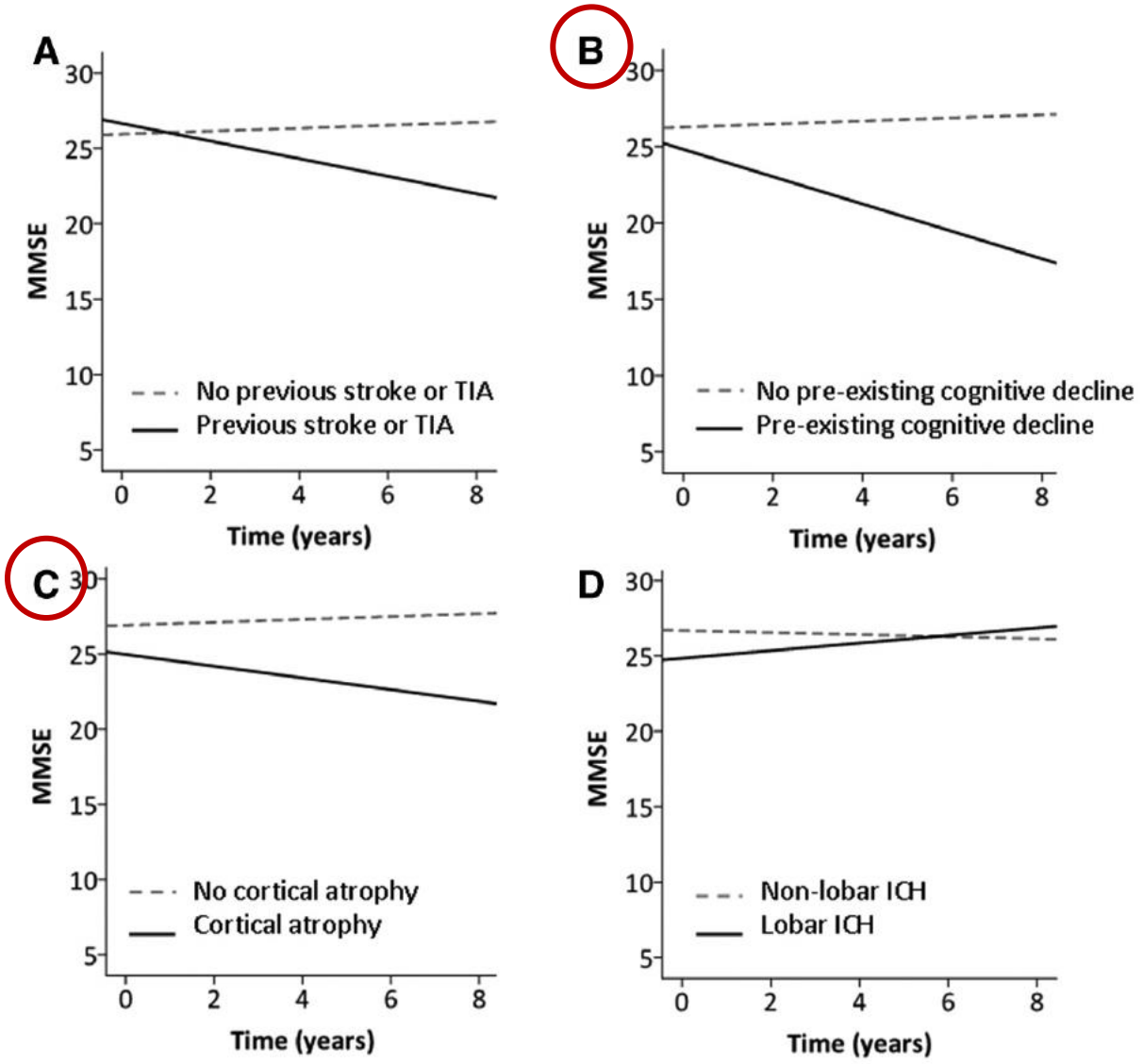
NTUH ICH-NPT cohort; N=89
Post ICH>1 Year



Lobar ICH appears more cognitively impaired

Cognitive domains	Lobar ICH (n=35)	Non-lobar ICH (n=54)	*P* value
Global function			
MMSE<cut-off 24, n (%)	6/35(17.1%)	6/54(11.1%)	.416
MoCA[1]<cut-off 26, n (%)	23/35(65.7%)	27/53(50.9%)	.171
Processing speed			
Processing Speed Index (PSI)[2] of WAIS-IV at least -1.5 SD, n (%)	6/32(18.8%)	6/48(12.5%)	.443
Verbal memory			
Immediate Recall of WMS-III at least -1.5 SD, n (%)	3/35(8.6%)	7/54(13.0%)	.522
Delay Recall of WMS-III at least -1.5 SD, n (%)	8/35(22.9%)	5/54(9.3%)	.076
Executive function			
Categories completed of MWCST[1] at least -1.5 SD, n (%)	13/34(38.2%)	11/54(20.4%)	.067
Perseverative errors of MWCST[1] at least -1.5 SD, n (%)	7/34(20.6%)	5/54(9.3%)	.132
Categories fluency at least -1.5 SD, n (%)	11/35(31.4%)	18/54(33.3%)	.851
CDR-SB, mean (SD)	1.46(1.64)	1.21(1.54)	.478

Ongoing cognitive impairment when ICH occurs? PITCH cohort



- Previous stroke or transient ischemic attack (β [SE], −0.55 [0.23]; P<0.05).
- **Preexisting cognitive impairment** (β [SE], −0.56 [0.25]; P<0.01).
- **Severity of cortical atrophy** (β [SE], −0.50 [0.19]; P<0.01).

Benedictus MR, Hochart A, Rossi C, et al. Prognostic Factors for Cognitive Decline After Intracerebral Hemorrhage. Stroke 2015;46:2773-2778.

Original Contribution

OPEN

Cognitive Impairment Before Intracerebral Hemorrhage Is Associated With Cerebral Amyloid Angiopathy

Gargi Banerjee, BMBCh, MRCP; Duncan Wilson, MBChB; Gareth Ambler, PhD; Karen Osei-Bonsu Appiah, MSc; Clare Shakeshaft, MSc; Surabhika Lunawat, MSc; Hannah Cohen, PhD; Tarek Yousry, Dr Med Habil; Gregory Y.H. Lip, FRCP; Keith W. Muir, MD; Martin M. Brown, FRCP; Rustam Al-Shahi Salman, PhD; Hans Rolf Jäger, MD; David J. Werring, PhD; on behalf of the CROMIS-2 Collaborators*

The contribution of baseline CAA?

- 166 patients with ICH
- Pre-existing cognitive impairment was determined using IQCODE

Table 2. Univariable and Adjusted Logistic Regression Models, Investigating Associations Between Cognitive Impairment Before ICH and Evidence of CAA

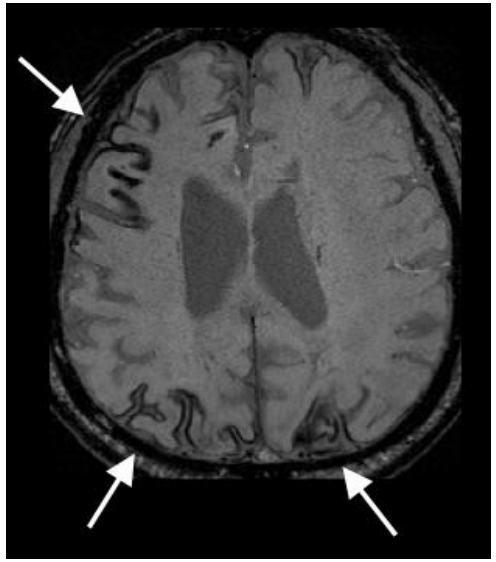
	Univariable OR (95% CI)	*P* Value	Adjusted OR (95% CI)	*P* Value
Meets modified Boston criteria for probable CAA	3.93 (1.72–8.96)	0.001	4.01 (1.53–10.51)	0.005
CAA score (per point increase)	1.45 (1.11–1.92)	0.007	1.42 (1.03–1.97)	0.033

Banerjee G, Wilson D, Ambler G et al. Cognitive Impairment Before Intracerebral Hemorrhage Is Associated With Cerebral Amyloid Angiopathy. Stroke. 2018 Jan;49(1):40-45.

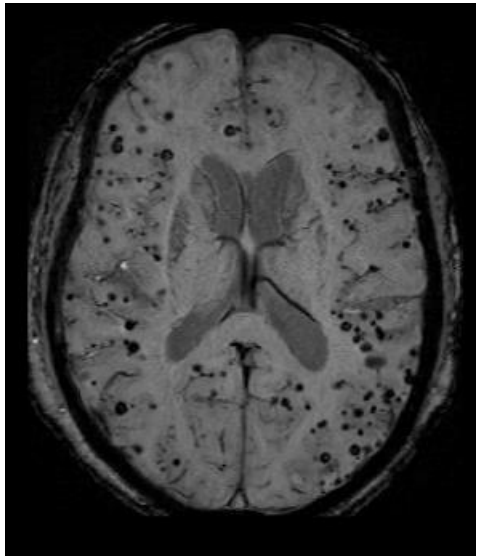
Neuroimaging risk factors for post-ICH cognitive impairment

Dementia risk after spontaneous intracerebral haemorrhage: a prospective cohort study

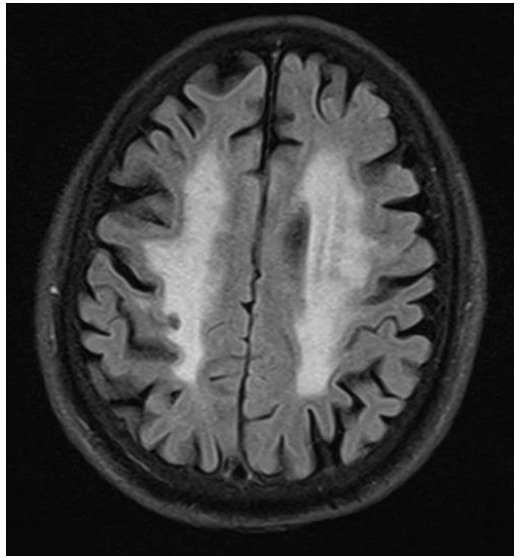
Solène Moulin, Julien Labreuche, Stéphanie Bombois, Costanza Rossi, Gregoire Boulouis, Hilde Hénon, Alain Duhamel, Didier Leys, Charlotte Cordonnier



cSS(+)



>5CMB



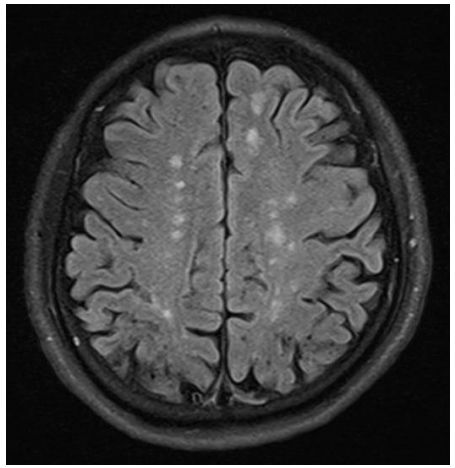
Severe WMH

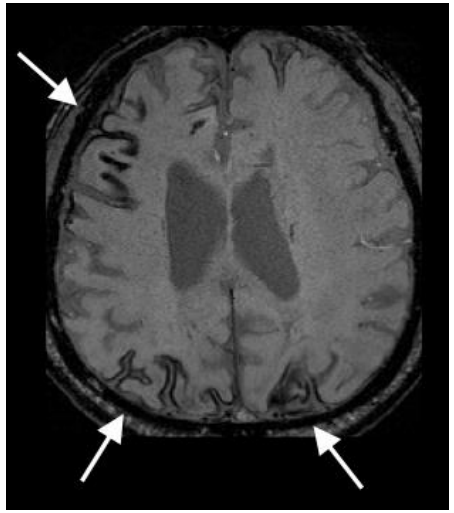
	n (%)	Number of events	Subhazard ratio (95% CI)	p value
Fazekas score*			1·80 (1·17–2·75)*	0·007*
0	26 (14%)	2	1·00 (reference)	..
1	51 (27%)	8	1·37 (0·30–6·31)	0·69
2	68 (36%)	18	1·66 (0·36–7·55)	0·51
3	43 (23%)	24	4·09 (0·87–19·15)	0·074
Cortical atrophy score*			2·02 (1·28–3·19)*	0·002*
0	36 (19%)	2	1·98 (0·40–9·73)	0·40
1	67 (36%)	11	4·78 (0·96–23·96)	0·057
2 + 3†	85 (45%)	39	7·24 (1·10–47·74)	0·040
≥ 1 old lacunes	72 (38%)	26	1·48 (0·86–2·54)	0·16
≥1 old macrohaemorrhage	42 (22%)	19	2·90 (1·66–5·07)	0·0002
Superficial siderosis				
Any superficial siderosis	35 (19%)	17	2·31 (1·27–4·20)	0·006
Focal superficial siderosis	22 (12%)	6	0·98 (0·44–2·17)	0·96
Disseminated superficial siderosis	15 (8%)	12	4·10 (1·91–8·79)	0·0003
>5 cerebral microbleeds	46 (25%)	22	2·38 (1·39–4·09)	0·002

Moulin S, Labreuche J, Bombois S, et al. Dementia risk after spontaneous intracerebral haemorrhage: a prospective cohort study. Lancet Neurol 2016;15:820-829.

WMH burden and disseminated cSS are risks for post-ICH dementia in CAA

late post-ICH dementia conversion (occurred after 6 months)





Multivariable analysis of risk factors for delayed post-ICH dementia conversion in patients with probable CAA

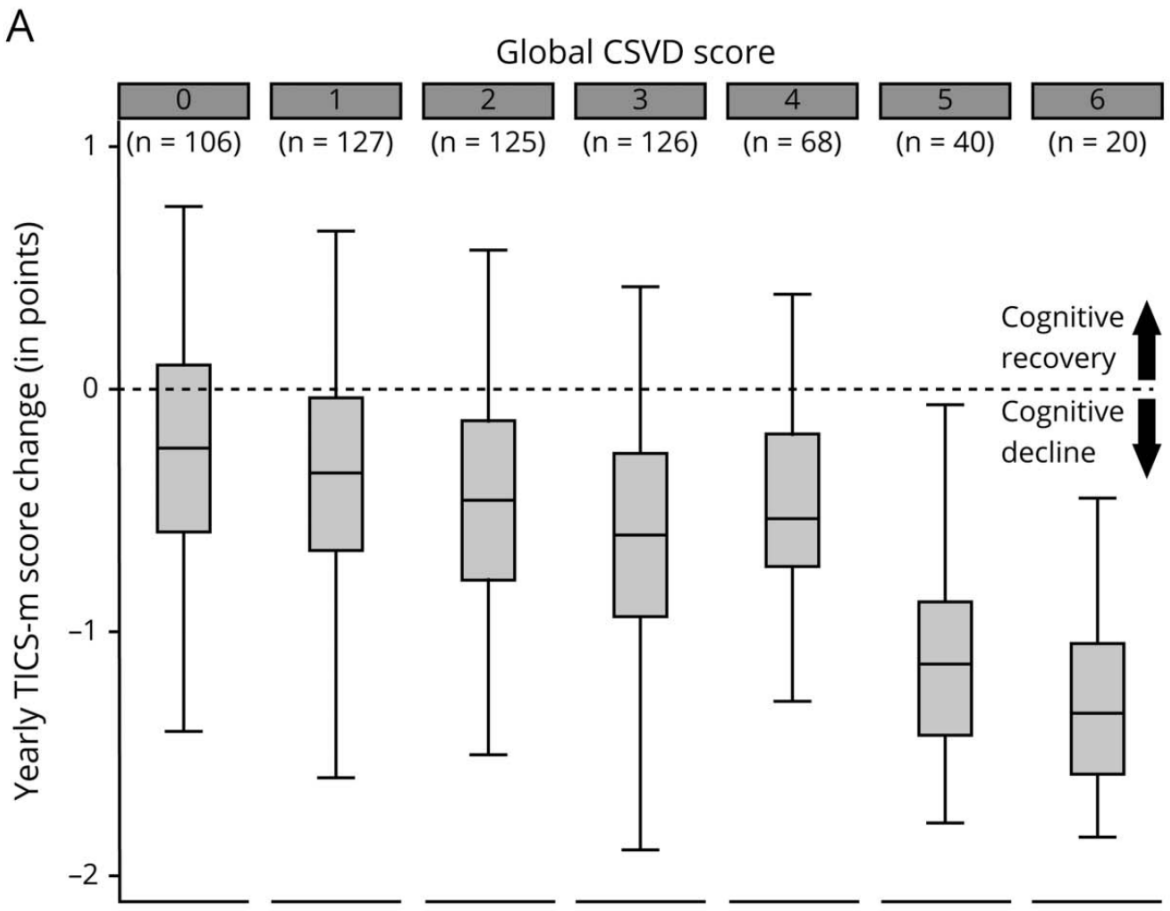
Variables	HR	95% CI	p
Model 1 (demographic factors)			
Age (per year)	1.042	0.989–1.098	0.123
Education (score)	0.66	0.361–1.208	0.178
MCI (yes versus no)	4.617	1.848–11.536	0.001*
Model 2 (neuroimaging factors)			
Disseminated cSS (yes versus no)	3.115	1.030–9.424	0.044*
WMH (Fazekas score)	1.439	1.036–2.001	0.03*
Lobar CMBs ≥ 5	1.105	0.431–2.834	0.835
WMH/TBV (%)#	1.480	1.157–1.891	0.002*
Model 3 (sensitivity analysis: factors combined)			
MCI (yes versus no)	5.880	2.250–15.367	<0.001*
Disseminated cSS (yes versus no)	3.275	1.129–9.499	0.029*
WMH (Fazekas score)	1.427	1.057–1.927	0.02*
WMH/TBV (%)#	1.426	1.112–1.830	0.005*
Model 4 (sensitivity analysis: factors combined)			
MCI (yes versus no)	6.043	2.401–15.212	<0.001*
SVD score for CAA ≥ 3	2.961	1.278–6.861	0.011*

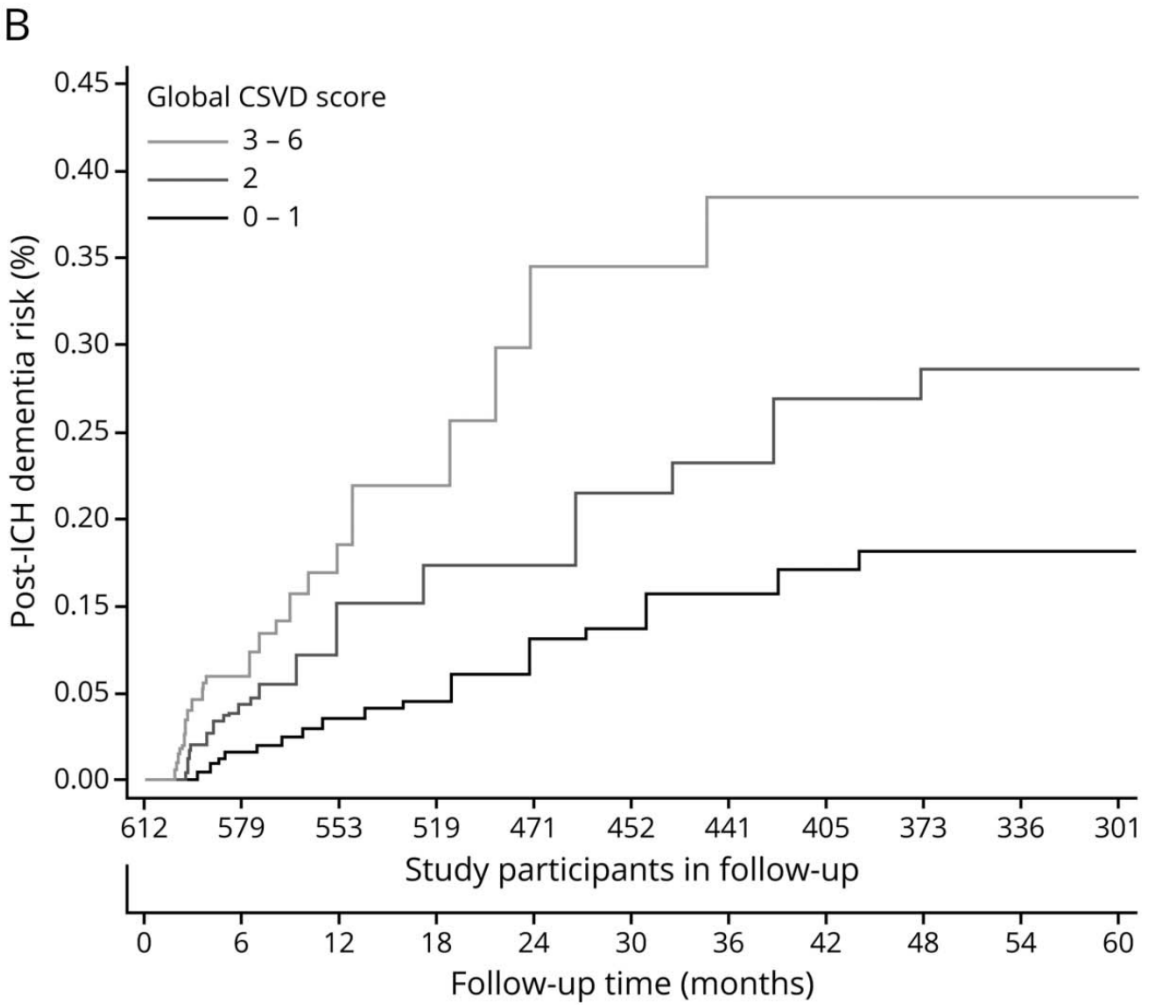
Model 1 and model 2 included demographic factors and neuroimaging factors separately, and factors survived from model 1 and model 2 were then included in model 3. Model 4 used SVD score for CAA to replace individual neuroimaging markers. #WHM/TBV (%) was included in the model to replace WHM Fazekas score. *with statistical significance. HR, hazard ratio; MCI, mild cognitive impairment; CMBs, cerebral microbleeds; WMH, white matter hyperintensity; cSS, cortical superficial siderosis; SVD, small vessel disease; CAA, cerebral amyloid angiopathy.

Xiong L, Charidimou A, Pasi M, et al. Predictors for Late Post-Intracerebral Hemorrhage Dementia in Patients with Probable Cerebral Amyloid Angiopathy. J Alzheimers Dis. 2019;71(2):435–442.

CSVD burden predicts risks of post-ICH dementia

CSVD scores ≥2: sensitivity 83%; specificity 91%





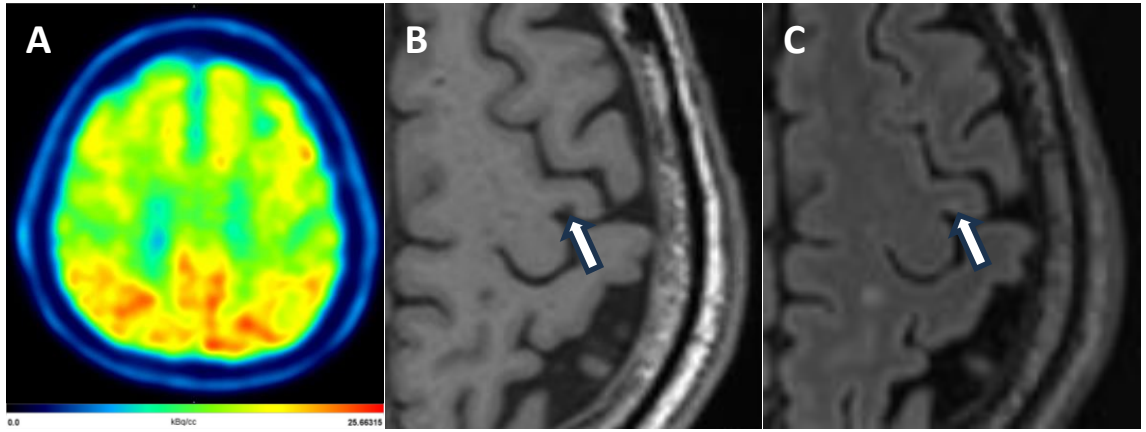
Pasi M, Sugita L, Xiong L, et al. Association of Cerebral Small Vessel Disease and Cognitive Decline After Intracerebral Hemorrhage. Neurology 2021 Jan 12;96(2):e182-e192

Cortical microinfarct and cognitive decline in ICH survivors

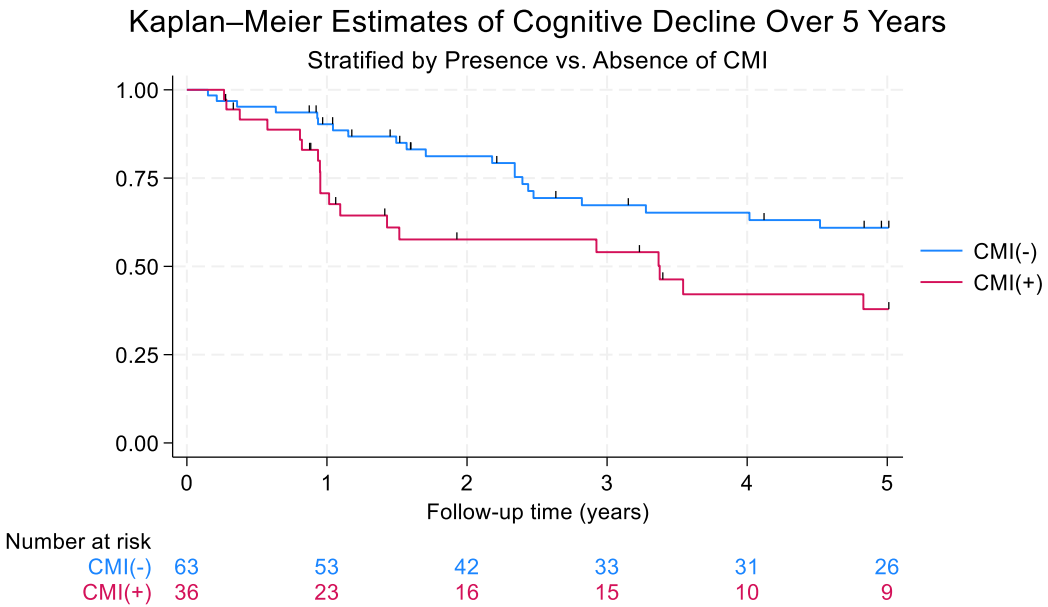
37.2%

CMI is associated with

- Probable CAA (OR 2.3)
- cSS (OR2.4)
- Amyloid load (OR 1.2)



Pu-Tien Chiang, MD



Risk factors	Model 1		Model 2		Model 3	
	HR (95% CI)	*P*-value	HR (95% CI)	*P*-value	HR (95% CI)	*P*-value
CMI	**2.02 (1.08-3.76)**	**0.027**	**2.11 (1.11-4.00)**	**0.022**	**2.63 (1.28-5.37)**	**0.008**
Age			**1.10 (1.06-1.14)**	**< 0.001**	**1.08 (1.03-1.12)**	**< 0.001**
Female			1.95 (1.00-3.83)	0.051	**2.40 (1.13-5.07)**	**0.022**
Education (years)			1.05 (0.97-1.13)	0.245	1.06 (0.98-1.14)	0.150
Probable CAA					1.14 (0.51-2.56)	0.749
Mean cortical thickness*					0.20 (0.03-1.37)	0.100
Total cSVD score					1.34 (0.92-1.95)	0.133

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Brain and Behavior Open Access WILEY

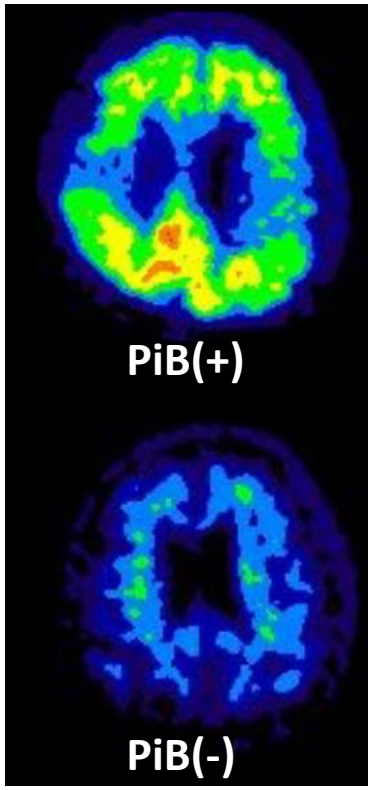
ORIGINAL ARTICLE

Cerebral amyloid deposition predicts long-term cognitive decline in hemorrhagic small vessel disease

Ya-Chin Tsai[1] | Hsin-Hsi Tsai[2,3] | Chia-Ju Liu[4] | Sheng-Sian Lin[2] | Ya-Fang Chen[5] | Jiann-Shing Jeng[2] | Li-Kai Tsai[2,6] | Ruoh-Fang Yen[4]

N = 68

Median follow-up 3.8 years



Ya-Chin Tsai, MD, MSc

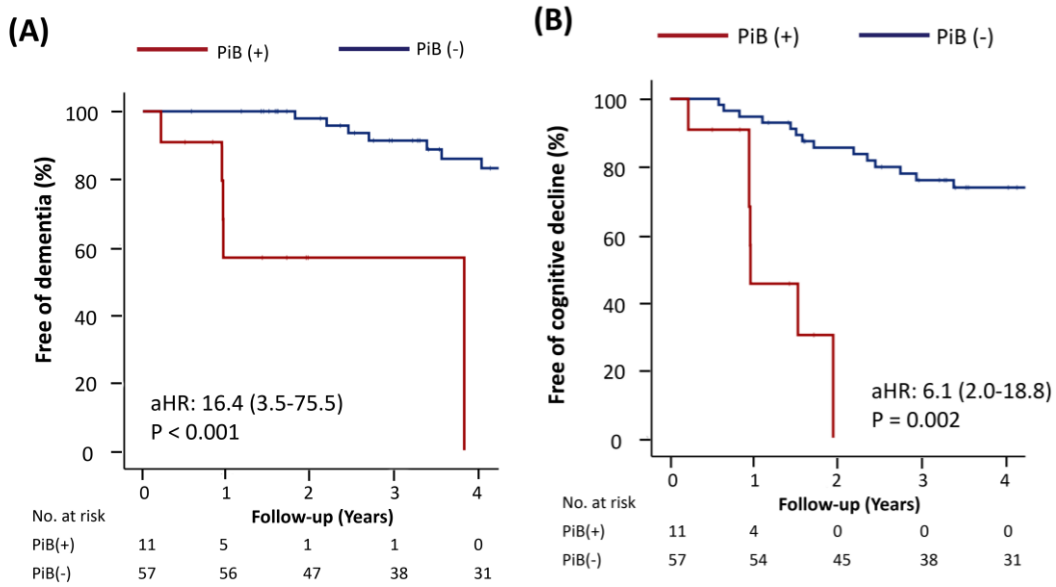
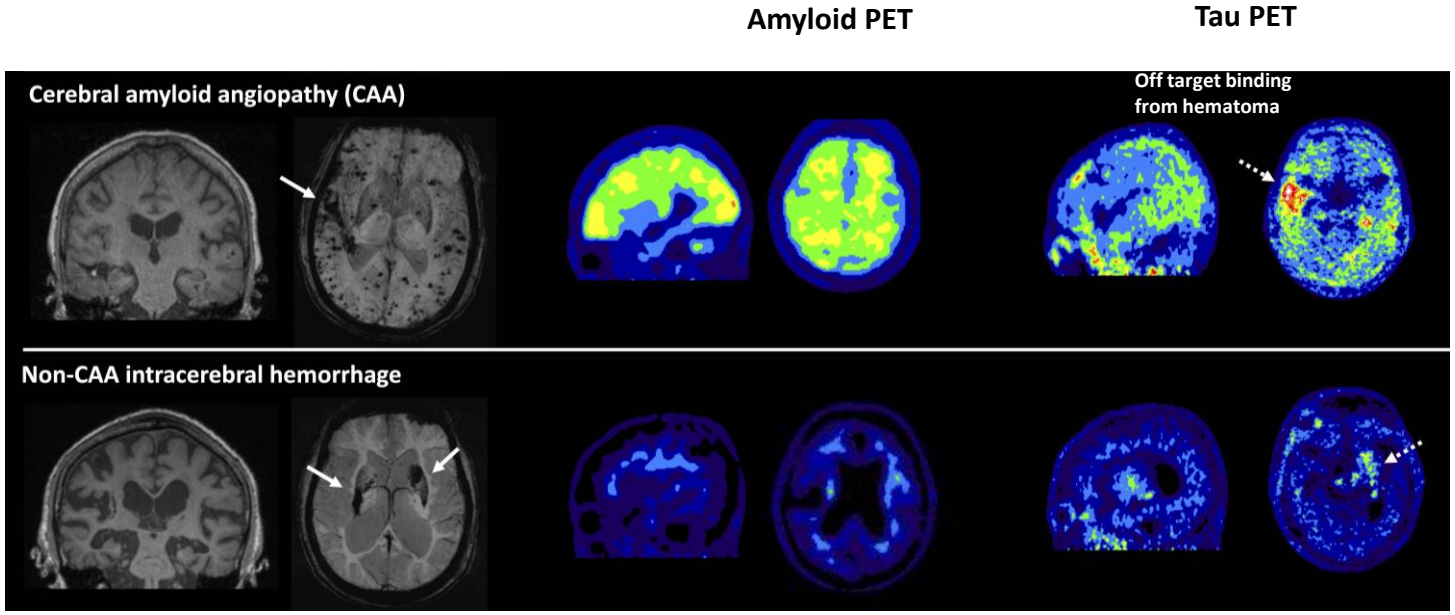


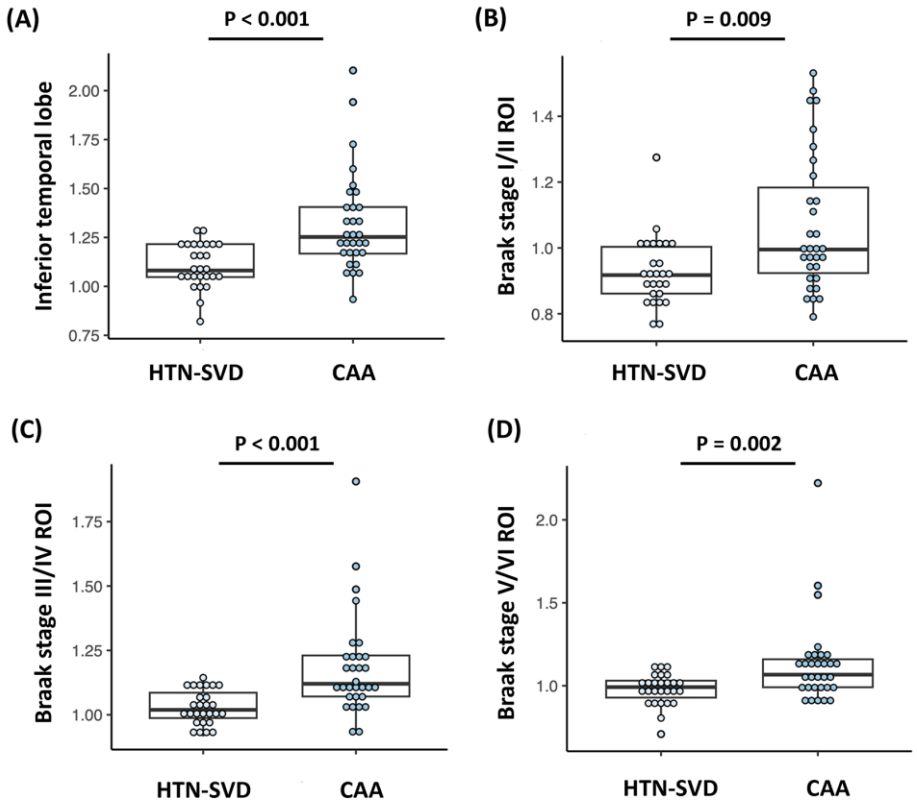
TABLE 3 Multivariable Cox regression models of factors that predict cognitive outcomes among survivors of intracerebral hemorrhage.

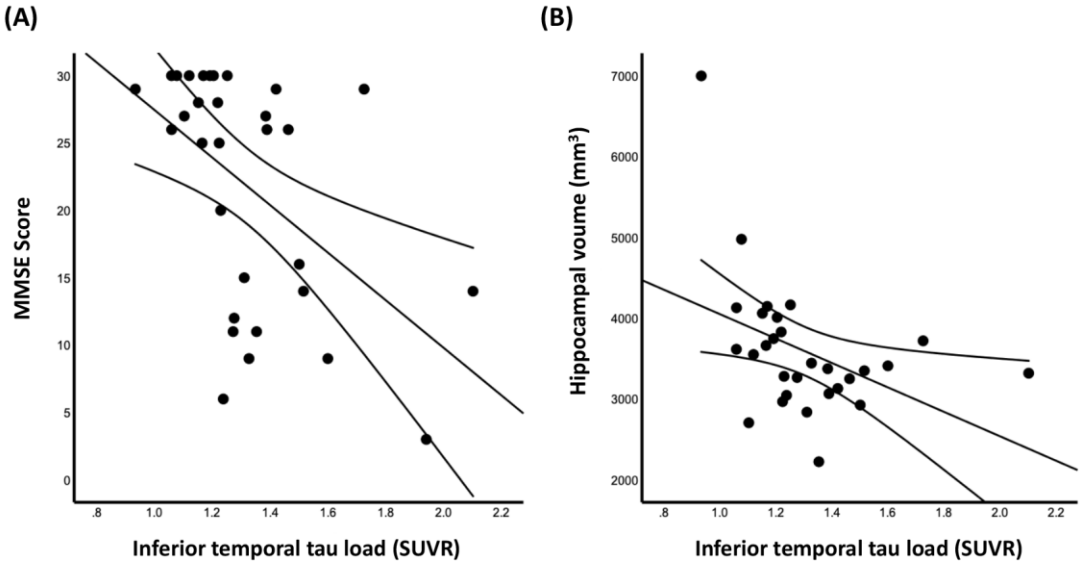
	Dementia conversion			MMSE decline ≥2		
	HR	95% CI	*p*-Value	HR	95% CI	*p*-Value
Age, per 10 years	2.2	.9–5.0	.066	2.2	1.3–3.8	.003
PiB PET (+)	15.8	2.6–95.4	.003	5.7	1.6–.3	.008
>5 Lobar CMBs	1.5	.3–6.2	.604	2.2	.8–5.5	.113
Presence of lacunes	.6	.1–5.4	.653	2.3	.8–7.0	.136
High-degree CSO-PVS	.8	.1–12.4	.899	2.1	.8–5.7	.133

Tsai YC, **Tsai HH**, Liu CJ, et al. Cerebral amyloid deposition predicts long-term cognitive decline in hemorrhagic small vessel disease. Brain Behav. 2023 Oct;13(10):e3189.

Tau pathology can be concomitant in CAA







	Model 1 (Univariable)		Model 2 (Age-adjusted)		Model 3 (Age- and PiB SUVR-adjusted)	
Parameter	β (95% CI)	P-value	β (95% CI)	P-value	β (95% CI)	P-value
PiB whole cortex SUVR	0.11 (0.02-0.19)	0.02	0.11 (0.00-0.21)	0.055	-	-
Lobar CMB number	0.06 (-0.16-0.14)	0.114	0.07 (-0.01-0.16)	0.067	-	-
Total cSS score	**0.11 (0.05-0.18)**	**0.002**	**0.13 (0.06-0.21)**	**0.001**	**0.11 (0.05-0.16)**	**<0.001**
WMH volume	0.06 (-0.07-0.19)	0.335	0.04 (-0.10-0.18)	0.555	-	-
CSO-PVS grade	0.04 (-0.06-0.15)	0.385	0.04 (-0.08-0.16)	0.500	-	-
CAA score	**0.13 (0.05-0.22)**	**0.003**	**0.14 (0.05-0.24)**	**0.006**	**0.12 (0.02-0.21)**	**0.015**

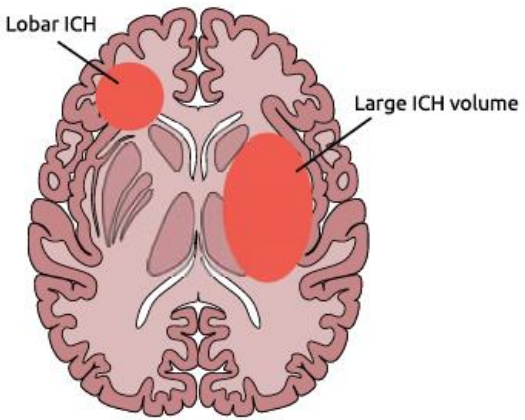
Tsai HH, Liu CJ, Lee BC, et al. Cerebral tau pathology in cerebral amyloid angiopathy. Brain Commun 2024;6:fcae086.

Spontaneous ICH as a precipitating insult

Reported incidence of post-ICH dementia ranges from 5.5% to 45.5%

Primary brain injury

- Mass effect and hematoma expansion
- Risk factors include:
  - Lobar ICH location
  - Larger ICH volume
  - Stroke severity (NIHSS score)



Secondary brain injury

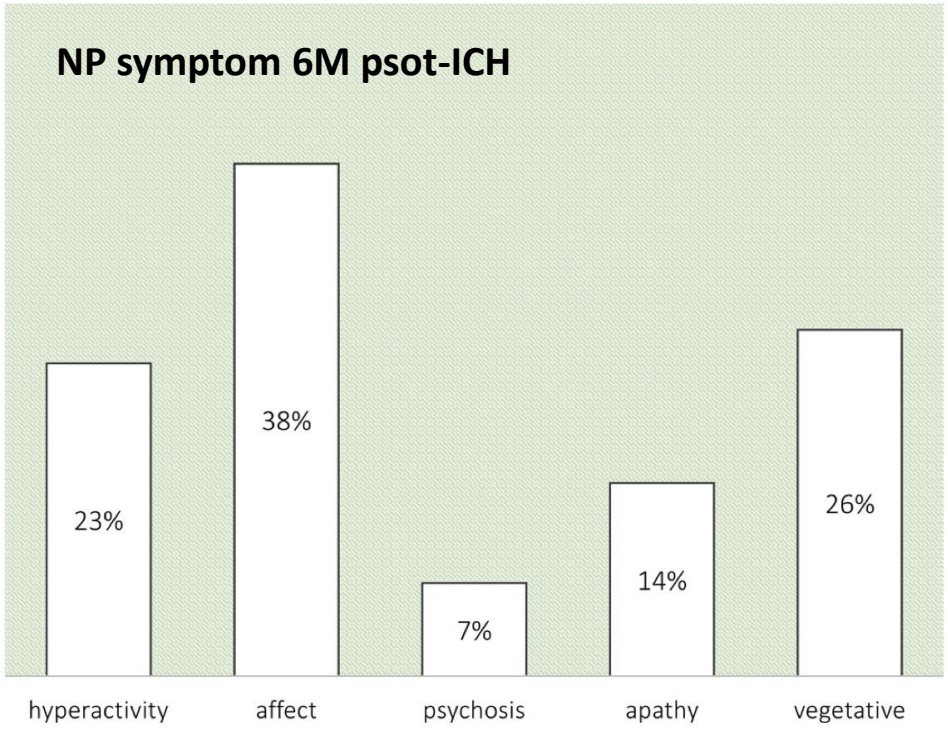
- Increased ICP and cerebral hypoperfusion
- NVU dysfunction and BBB disruption
- Inflammation, oxidative stress, neurotoxicity

Zhang Z, Lim MJR. Incident Dementia After Spontaneous Intracerebral Hemorrhage. J Alzheimers Dis 2024;99:41-51.

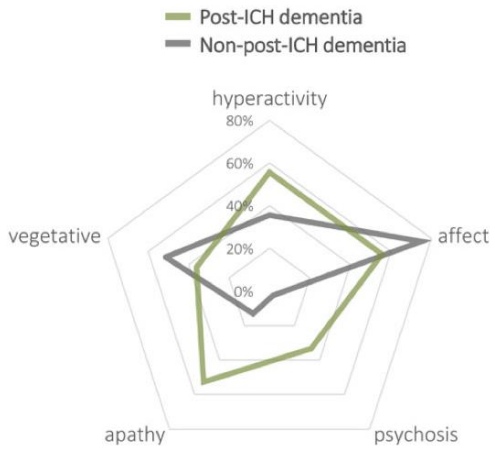
Original research

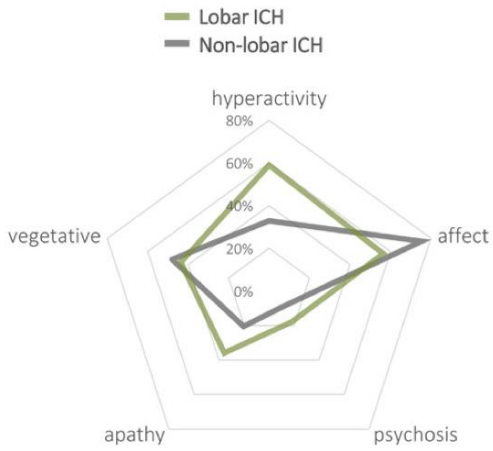
Long-term neuropsychiatric symptoms in spontaneous intracerebral haemorrhage survivors

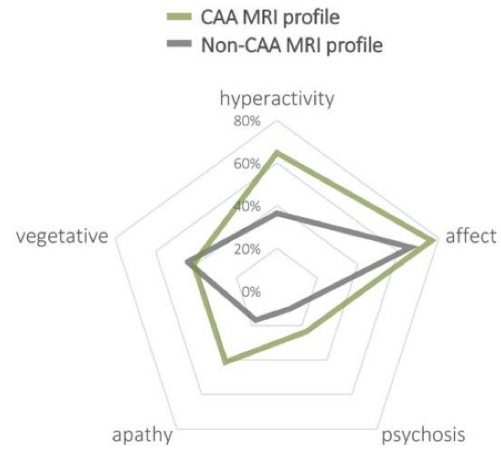
Giuseppe Scopelliti ,[1] Barbara Casolla,[1] Grégoire Boulouis ,[2] Gregory Kuchcinski,[2] Solène Moulin,[1] Didier Leys ,[1] Hilde Henon,[1] Charlotte Cordonnier ,[1] Marco Pasi [1]



- 202 patients survived 6M after ICH
- 55% had NP symptoms
- Higher prevalence in post-ICH dementia and CAA-ICH







Scopelliti G, Casolla B, Boulouis G, et al. Long-term neuropsychiatric symptoms in spontaneous intracerebral haemorrhage survivors. J Neurol Neurosurg Psychiatry 2021.

ORIGINAL ARTICLE

european journal of neurology
the official journal of the european academy of neurology

Predictors of affective disturbances and cognitive impairment following small spontaneous supratentorial intracerebral hemorrhage

Qiuyi Jiang[1,2] | Chunyang Liu[1,2] | Hongli Zhang[1,2] | Rui Liu[1,2] | Jian Zhang[1,2] | Jinyi Guo[1,2] | Enzhou Lu[1,2] | Shouyue Wu[1,2] | Jianda Sun[1,2] | Yan Gao[1,2] | Qiunan Yang[1,2] | Guangyao Shi[1,2] | Chao Yuan[1,2] | Yanchao Liang[1,2] | Huan Xiang[1,2] | Lu Wang[3] | Guang Yang[1,2]

- 1,563 ICH survivors (mostly deep)
- 52.8% with depressive symptoms
- 39.4% exhibited anxiety symptoms

Modifiable factor?

	Cognitive impairment		Depressive symptoms		Anxiety symptoms	
Variables	OR (95% CI)	*p*	OR (95% CI)	*p*	OR (95% CI)	*p*
Age	1.46 (1.26, 1.69)	<0.001	1.32 (1.16, 1.51)	<0.001	1.19 (1.05, 1.36)	0.008
Male	1.65 (1.20, 2.28)	0.002	1.58 (1.19, 2.10)	0.002	0.80 (0.60, 1.05)	0.112
Alcohol intake	0.73 (0.55, 0.97)	0.029	1.56 (1.20, 2.03)	<0.001	1.48 (1.14, 1.93)	0.003
Hospitalization days	1.04 (0.91, 1.18)	0.592	1.16 (1.03, 1.30)	0.015	1.17 (1.04, 1.31)	0.009
Systolic blood pressure	0.43 (0.36, 0.51)	<0.001	0.85 (0.73, 0.99)	0.036	1.11 (0.95, 1.29)	0.191
Diastolic blood pressure	1.10 (0.93, 1.32)	0.273	1.07 (0.92, 1.26)	0.376	0.72 (0.61, 0.84)	<0.001
Hematoma volume	0.67 (0.59, 0.77)	<0.001	1.56 (1.38, 1.76)	<0.001	0.84 (0.75, 0.95)	0.005
Anatomical distribution						
Deep location		Ref.		Ref.		Ref.
Lobar location	0.31 (0.22, 0.43)	<0.001	1.00 (0.73, 1.36)	0.986	1.13 (0.83, 1.54)	0.424

Jiang Q, Liu C, Zhang H, et al. Predictors of affective disturbances and cognitive impairment following small spontaneous supratentorial intracerebral hemorrhage. Eur J Neurol. 2024 Nov 14;32(1):e16544.

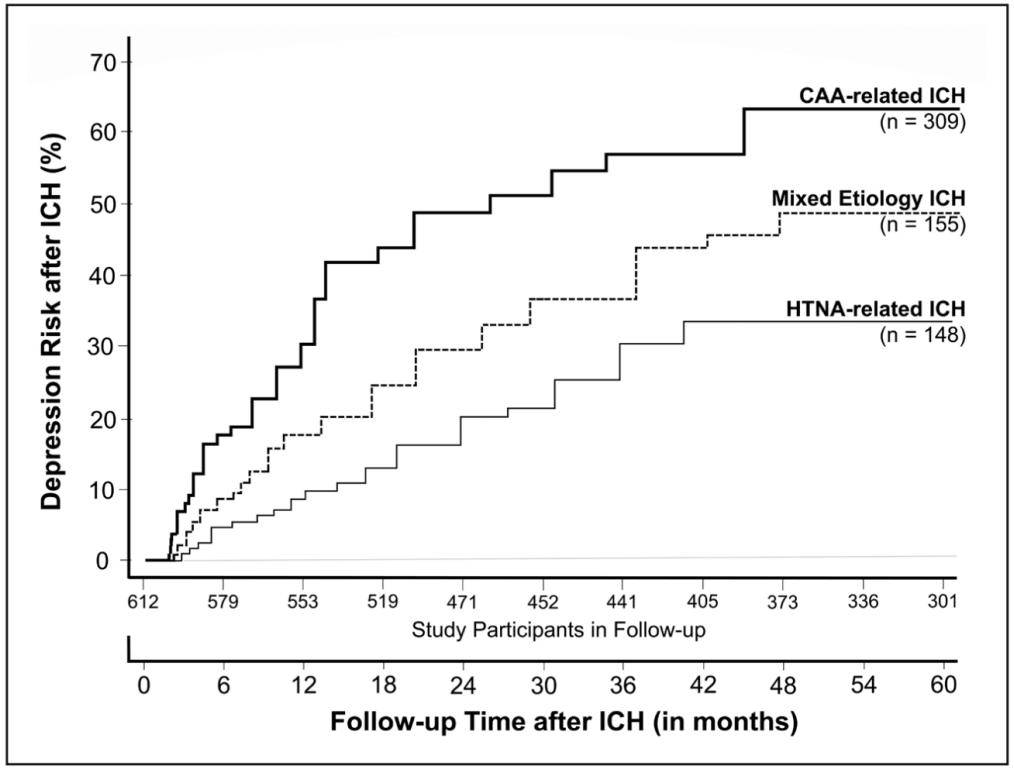
The contribution of CSVD on post-ICH depression

Stroke

CLINICAL AND POPULATION SCIENCES

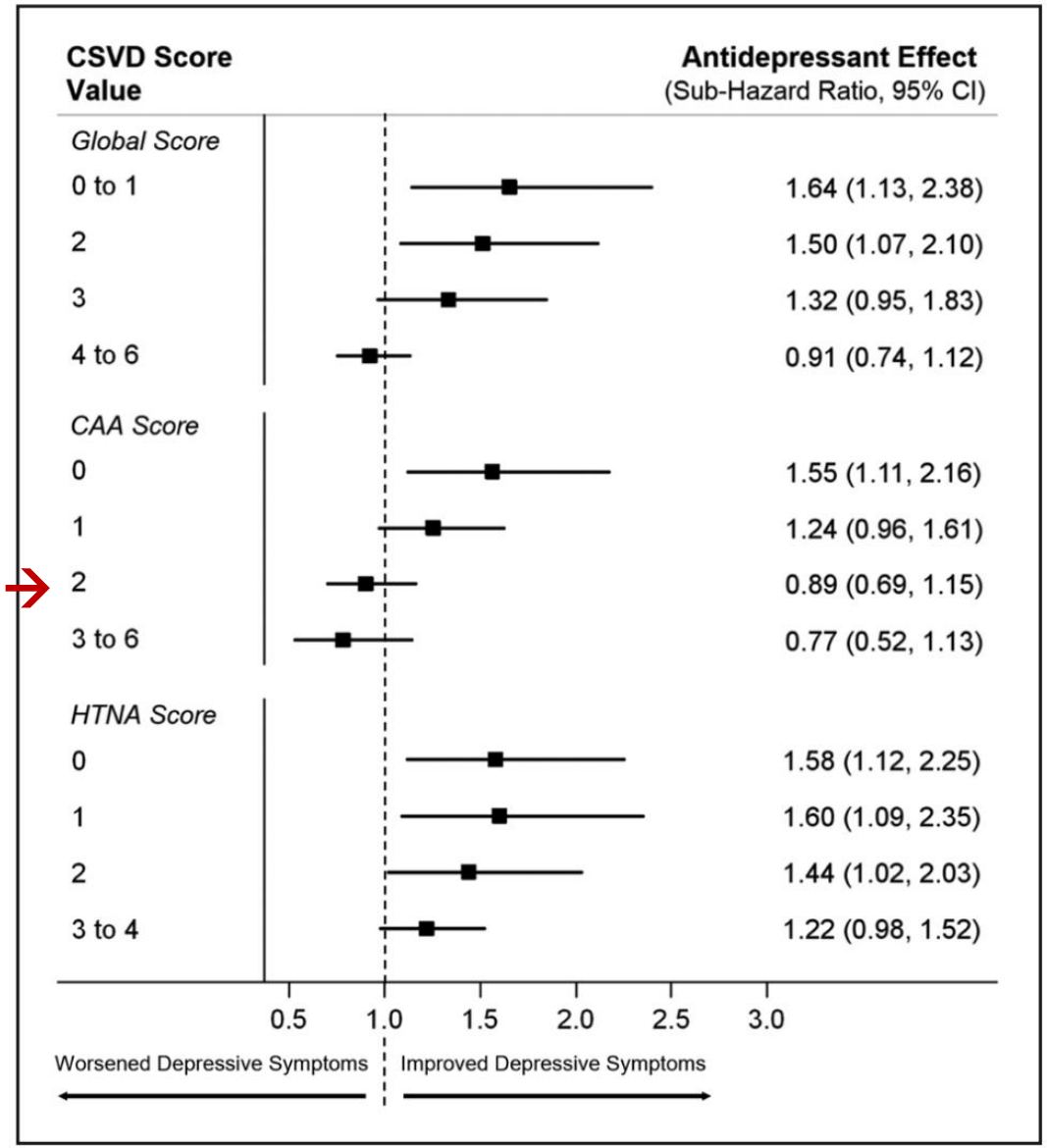
Cerebral Small Vessel Disease and Depression Among Intracerebral Hemorrhage Survivors

Juan Pablo Castello, MD*; Marco Pasi, MD*; Patryk Kubiszewski, BA; Jessica R. Abramson, BA; Andreas Charidimou, MD, PhD; Christina Kourkoulis, BS; Zora DiPucchio, BS, MBA; Kristin Schwab, BA; Christopher D. Anderson, MD, MMSc; M. Edip Gurol, MD, MSc; Steven M. Greenberg, MD, PhD; Jonathan Rosand, MD, MSc; Anand Viswanathan, MD, PhD; Alessandro Biffi, MD



P = 0.037 →

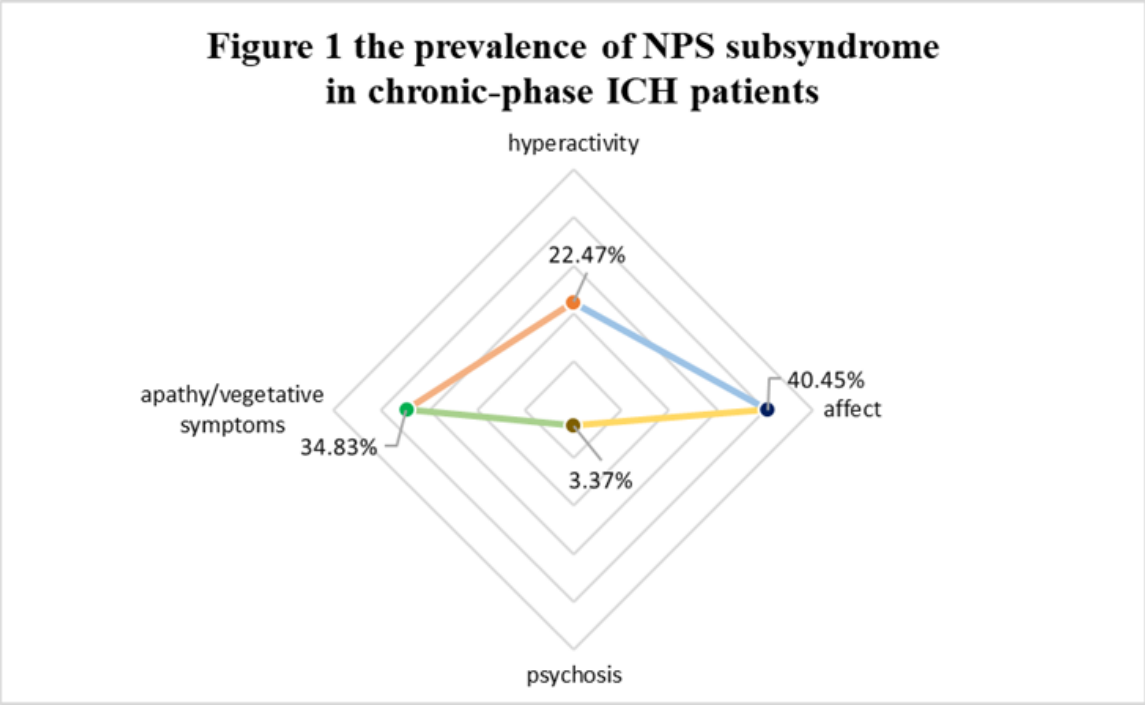
Response to antidepressant

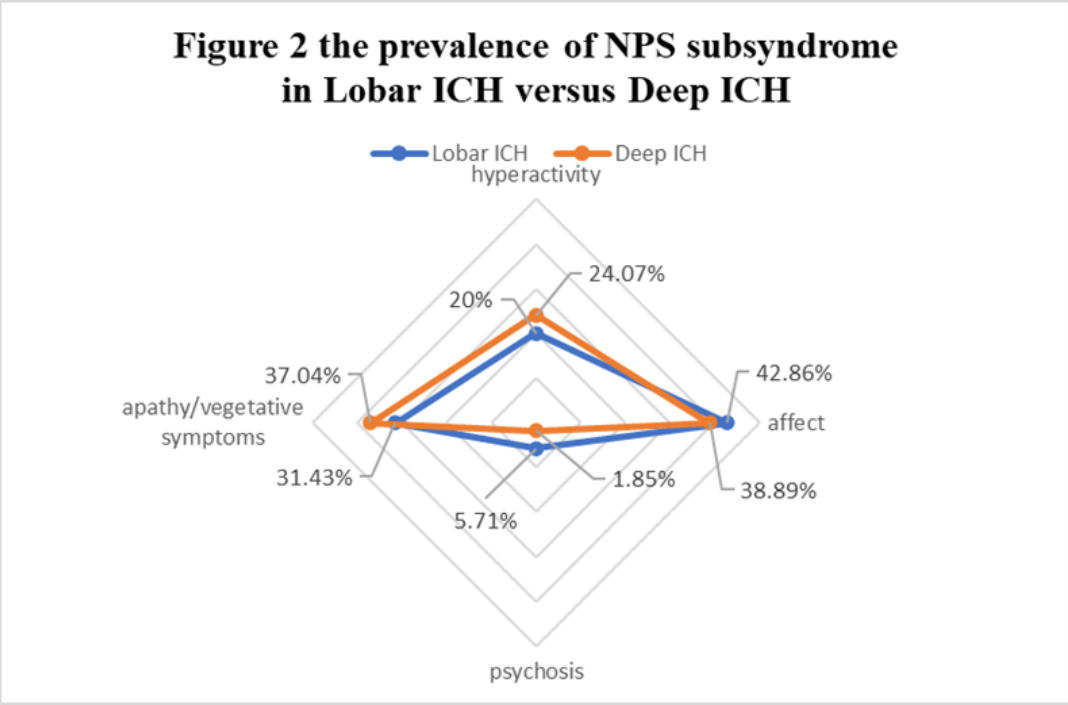


Castello JP, Pasi M, Kubiszewski P, et al. Cerebral Small Vessel Disease and Depression Among Intracerebral Hemorrhage Survivors. Stroke. 2021 Sep 30;53(2):523–531.

Long-term affective symptoms are common in ICH survivors

Median f/u: 5.7 year (N=95)

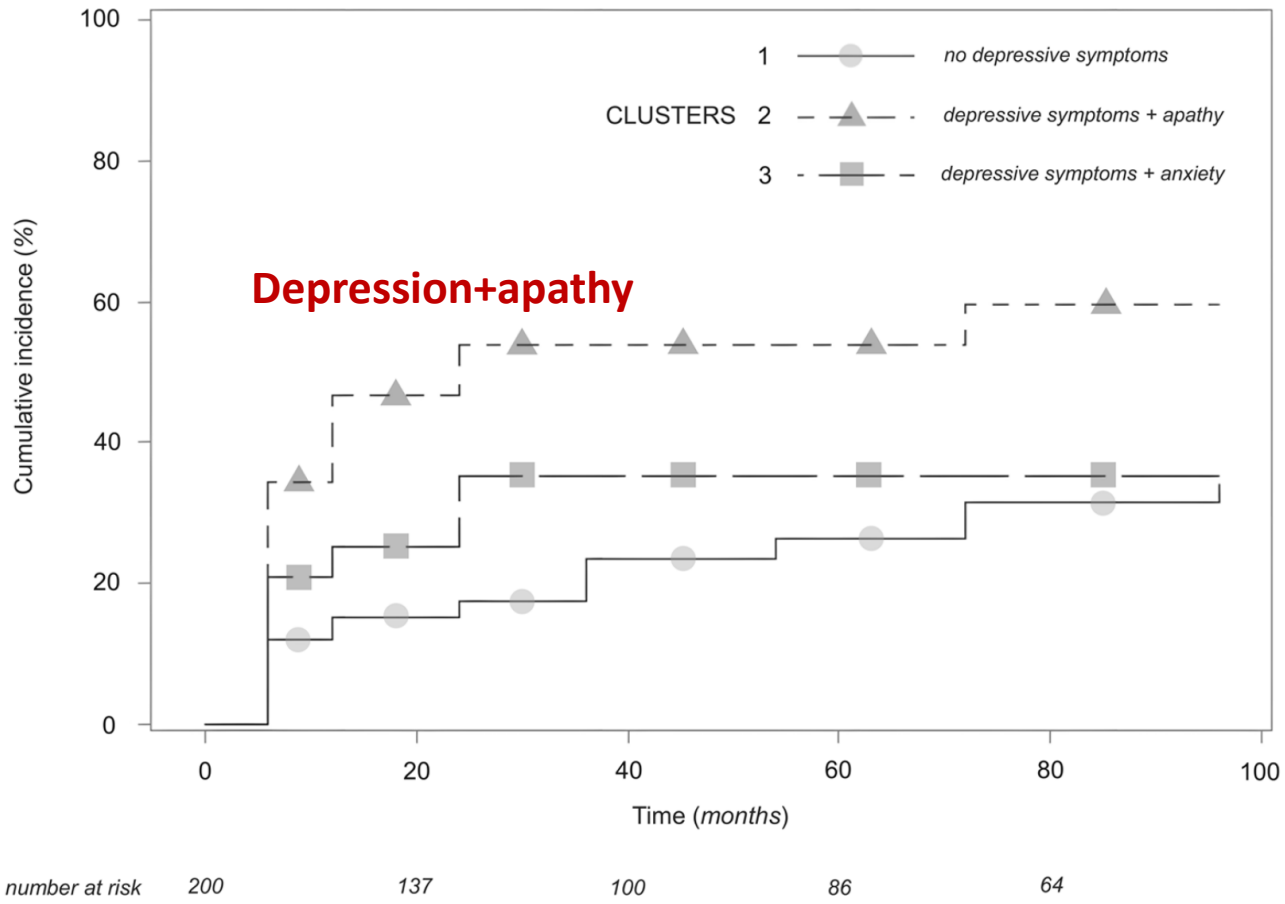


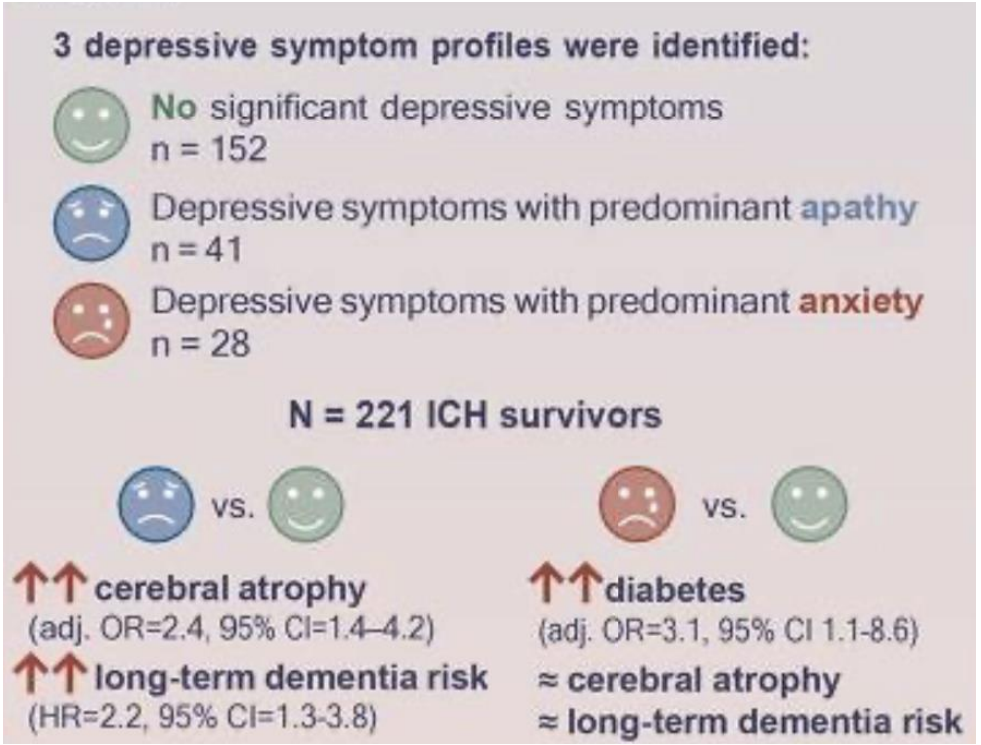


- Those with long-term affective symptoms were more cognitively impaired ($p < 0.001$)
- Deep CMBs is independently associated with long-term depression and anxiety (OR=1.2, p=0.02)

Lin SH, **Tsai HH** et al, in preparation

Screening of NPS in ICH survivors (Depression, apathy)

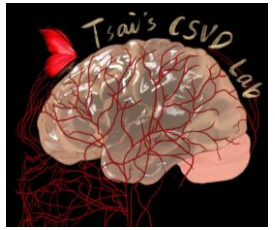




Scopelliti G, Kyheng M, Casolla B, et al. Depressive symptoms profile and dementia risk after spontaneous intracerebral haemorrhage. Eur Stroke J. 2024 Sep 26:23969873241284725.

Summary and Take Home Messages

- Cognitive impairment is common among post-ICH survivors (**>10%** 1 year post-ICH).
- Risk factors include **lobar ICH**, **preexisting cognitive impairment**, **CSVD burden** and types (**CAA**).
- Long-term cognitive profile: Decreased **executive function** and impaired memory.
- Post-ICH cognitive impairment is highly associated with **neuropsychiatric symptoms**, especially in **affective** domain (depression, anxiety, apathy).
- Screening of cognitive function and neuropsychiatric symptoms are important measures in managing long-term consequences of ICH survivors.



Thank you.
hsinhsi@ntu.edu.tw