

Supplementary References

- Alafuzoff I, Libard S. Mixed brain pathology is the most common cause of cognitive impairment in the elderly. *J Alzheimers Dis* 2020;78:453–465.
- Alafuzoff I, Aho L, Helisalme S, Mannermaa A, Soininen H. β -amyloid deposition in brains of subjects with diabetes. *Neuropathol Appl Neurobiol* 2009;35:60–68.
- Attems J, Lauda F, Jellinger KA. Unexpectedly low prevalence of intracerebral hemorrhages in sporadic cerebral amyloid angiopathy: an autopsy study. *J Neurol* 2008;255:70–76.
- Cholerton B, Larson EB, Baker LD, Craft S, Crane PK, Millard SP, et al. Neuropathologic correlates of cognition in a population-based sample. *J Alzheimers Dis* 2013;36:699–709.
- Conner SC, Pase MP, Carneiro H, Raman MR, McKee AC, Alvarez VE, et al. Mid-life and late-life vascular risk factor burden and neuropathology in old age. *Ann Clin Transl Neurol* 2019;6:2403–2412.
- Erten-Lyons D, Dodge HH, Woltjer R, Silbert LC, Howieson DB, Kramer P, et al. Neuropathologic basis of age-associated brain atrophy. *JAMA Neurol* 2013;70:616–622.
- Hamasaki H, Shijo M, Nakamura A, Honda H, Yamada Y, Oda Y, et al. Concurrent cardiac transthyretin and brain β amyloid accumulation among the older adults: the Hisayama study. *Brain Pathol* 2022;32:e13014.
- Hamilton CA, Matthews FE, Erskine D, Attems J, Thomas AJ. Neurodegenerative brain changes are associated with area deprivation in the United Kingdom: findings from the brains for dementia research study. *Acta Neuropathol Commun* 2021;9:198.
- Itoh Y, Yamada M, Hayakawa M, Otomo E, Miyatake T. Subpial β A4 peptide deposits are closely associated with amyloid angiopathy in the elderly. *Neurosci Lett* 1993;155:144–147.
- Karanth SD, Katsumata Y, Nelson PT, Fardo DW, McDowell JK, Schmitt FA, et al. Cancer diagnosis is associated with a lower burden of dementia and less Alzheimer's-type neuropathology. *Brain* 2022;145:2518–2527.
- Kovacs GG, Milenkovic I, Wöhrer A, Höftberger R, Gelpi E, Haberler C, et al. Non-Alzheimer neurodegenerative pathologies and their combinations are more frequent than commonly believed in the elderly brain: a community-based autopsy series. *Acta Neuropathol* 2013;126:365–384.
- Kövari E, Herrmann FR, Hof PR, Bouras C. The relationship between cerebral amyloid angiopathy and cortical microinfarcts in brain ageing and Alzheimer's disease. *Neuropathol Appl Neurobiol* 2013;39:498–509.
- Kövari E, Charidimou A, Herrmann FR, Giannakopoulos P, Bouras C, Gold G. No neuropathological evidence for a direct topographical relation between microbleeds and cerebral amyloid angiopathy. *Acta Neuropathol Commun* 2015;3:49.
- Masuda J, Tanaka K, Ueda K, Omae T. Autopsy study of incidence and distribution of cerebral amyloid angiopathy in Hisayama, Japan. *Stroke* 1988;19:205–210.
- Matthews FE, Brayne C, Lowe J, McKeith I, Wharton SB, Ince P. Epidemiological pathology of dementia: attributable-risks at death in the Medical Research Council cognitive function and ageing study. *PLoS Med* 2009;6:e1000180.
- Moghekar A, Kraut M, Elkins W, Troncoso J, Zonderman AB, Resnick SM, et al. Cerebral white matter disease is associated with Alzheimer pathology in a prospective cohort. *Alzheimers Dement* 2012;8(5 Suppl):S71–S77.
- Ng TH, Leung SY, Wong MP. Cerebral amyloid angiopathy in Chinese: incidence and significance. *Clin Neurol Neurosurg* 1991;93:19–23.
- Oveisgharan S, Arvanitakis Z, Yu L, Farfel J, Schneider JA, Bennett DA. Sex differences in Alzheimer's disease and common neuropathologies of aging. *Acta Neuropathol* 2018;136:887–900.
- Robinson JL, Corrada MM, Kovacs GG, Dominique M, Caswell C, Xie SX, et al. Non-Alzheimer's contributions to dementia and cognitive resilience in the 90+ study. *Acta Neuropathol* 2018;136:377–388.
- Robinson AC, Davidson YS, Horan MA, Pendleton N, Mann DMA. Pathological correlates of cognitive impairment in the University of Manchester longitudinal study of cognition in normal healthy old age. *J Alzheimers Dis* 2018;64:483–496.
- Tanprasertsuk J, Johnson EJ, Johnson MA, Poon LW, Nelson PT, Davey A, et al. Clinico-neuropathological findings in the oldest old from the Georgia centenarian study. *J Alzheimers Dis* 2019;70:35–49.
- Tanskanen M, Mäkelä M, Myllykangas L, Notkola IL, Polvikoski T, Sulkava R, et al. Prevalence and severity of cerebral amyloid angiopathy: a population-based study on very elderly Finns (Vantaa 85+). *Neuropathol Appl Neurobiol* 2012;38:329–336.
- Vinters HV, Gilbert JJ. Cerebral amyloid angiopathy: incidence and complications in the aging brain. II. The distribution of amyloid vascular changes. *Stroke* 1983;14:924–928.
- Vonsattel JP, Myers RH, Hedley-Whyte ET, Ropper AH, Bird ED, Richardson EP Jr. Cerebral amyloid angiopathy without and with cerebral hemorrhages: a comparative histological study. *Ann Neurol* 1991;30:637–649.
- Xu D, Yang C, Wang L. Cerebral amyloid angiopathy in aged Chinese: a clinico-neuropathological study. *Acta Neuropathol* 2003;106:89–91.
- Alakbarzade V, French JM, Howlett DR, Attems J, Francis PT,

- Stratton S, et al. Cerebral amyloid angiopathy distribution in older people: a cautionary note. *Alzheimers Dement (N Y)* 2021;7:e12145.
27. Bergeron C, Ranalli PJ, Miceli PN. Amyloid angiopathy in Alzheimer's disease. *Can J Neurol Sci* 1987;14:564-569.
 28. Bertrand E, Lewandowska E, Stepień T, Szpak GM, Pasennik E, Modzelewska J. Amyloid angiopathy in idiopathic Parkinson's disease. Immunohistochemical and ultrastructural study. *Folia Neuropathol* 2008;46:255-270.
 29. Brayne C, Richardson K, Matthews FE, Fleming J, Hunter S, Xuereb JH, et al. Neuropathological correlates of dementia in over-80-year-old brain donors from the population-based Cambridge city over-75s cohort (CC75C) study. *J Alzheimers Dis* 2009;18:645-658.
 30. Chalmers K, Wilcock GK, Love S. APOE ϵ 4 influences the pathological phenotype of Alzheimer's disease by favouring cerebrovascular over parenchymal accumulation of A β protein. *Neuropathol Appl Neurobiol* 2003;29:231-238.
 31. Cruz-Sánchez FF, Durany N, Thome J, Riederer P, Zambón D. Correlation between Apolipoprotein-E polymorphism and Alzheimer's disease pathology. *J Alzheimers Dis* 2000;2:223-229.
 32. Dallaire-Théroux C, Saikali S, Richer M, Potvin O, Duchesne S. Histopathological analysis of cerebrovascular lesions associated with aging. *J Neuropathol Exp Neurol* 2022;81:97-105.
 33. Davis DG, Schmitt FA, Wekstein DR, Markesbery WR. Alzheimer neuropathologic alterations in aged cognitively normal subjects. *J Neuropathol Exp Neurol* 1999;58:376-388.
 34. De Reuck J, Deramecourt V, Cordonnier C, Leys D, Pasquier F, Maurage CA. Prevalence of cerebrovascular lesions in patients with Lewy body dementia: a neuropathological study. *Clin Neurol Neurosurg* 2013;115:1094-1097.
 35. De Reuck J. The impact of cerebral amyloid angiopathy in various neurodegenerative dementia syndromes: a neuropathological study. *Neurol Res Int* 2019;2019:7247325.
 36. Dickson DW, Crystal HA, Mattiace LA, Masur DM, Blau AD, Davies P, et al. Identification of normal and pathological aging in prospectively studied nondemented elderly humans. *Neurobiol Aging* 1992;13:179-189.
 37. Dugger BN, Adler CH, Shill HA, Caviness J, Jacobson S, Driver-Dunckley E, et al. Concomitant pathologies among a spectrum of parkinsonian disorders. *Parkinsonism Relat Disord* 2014;20:525-529.
 38. Esiri M, Chance S, Joachim C, Warden D, Smallwood A, Sloan C, et al. Cerebral amyloid angiopathy, subcortical white matter disease and dementia: literature review and study in OP-TIMA. *Brain Pathol* 2015;25:51-62.
 39. Esiri MM, Wilcock GK. Cerebral amyloid angiopathy in dementia and old age. *J Neurol Neurosurg Psychiatry* 1986;49:1221-1226.
 40. Guidoux C, Hauw JJ, Klein IF, Labreuche J, Berr C, Duyckaerts C, et al. Amyloid angiopathy in brain hemorrhage: a postmortem neuropathological-magnetic resonance imaging study. *Cerebrovasc Dis* 2018;45:124-131.
 41. Haglund M, Englund E. Cerebral amyloid angiopathy, white matter lesions and Alzheimer encephalopathy - a histopathological assessment. *Dement Geriatr Cogn Disord* 2002;14:161-166.
 42. Head E, Phelan MJ, Doran E, Kim RC, Poon WW, Schmitt FA, et al. Cerebrovascular pathology in Down syndrome and Alzheimer disease. *Acta Neuropathol Commun* 2017;5:93.
 43. Honig LS, Kukull W, Mayeux R. Atherosclerosis and AD: analysis of data from the US National Alzheimer's Coordinating Center. *Neurology* 2005;64:494-500.
 44. Jellinger KA. Prevalence and impact of cerebrovascular lesions in Alzheimer and Lewy body diseases. *Neurodegener Dis* 2010;7:112-115.
 45. Kawas CH, Kim RC, Sonnen JA, Bullain SS, Trieu T, Corrada MM. Multiple pathologies are common and related to dementia in the oldest-old: the 90+ study. *Neurology* 2015;85:535-542.
 46. Love S, Nicoll JA, Hughes A, Wilcock GK. APOE and cerebral amyloid angiopathy in the elderly. *Neuroreport* 2003;14:1535-1536.
 47. Magaki S, Yong WH, Khanlou N, Tung S, Vinters HV. Comorbidity in dementia: update of an ongoing autopsy study. *J Am Geriatr Soc* 2014;62:1722-1728.
 48. Malek-Ahmadi M, Chen K, Perez SE, Mufson EJ. Cerebral amyloid angiopathy and neuritic plaque pathology correlate with cognitive decline in elderly non-demented individuals. *J Alzheimers Dis* 2019;67:411-422.
 49. McAleese KE, Graham S, Dey M, Walker L, Erskine D, Johnson M, et al. Extravascular fibrinogen in the white matter of Alzheimer's disease and normal aged brains: implications for fibrinogen as a biomarker for Alzheimer's disease. *Brain Pathol* 2019;29:414-424.
 50. McKee AC, Au R, Cabral HJ, Kowall NW, Seshadri S, Kubilus CA, et al. Visual association pathology in preclinical Alzheimer disease. *J Neuropathol Exp Neurol* 2006;65:621-630.
 51. Mountjoy CQ, Tomlinson BE, Gibson PH. Amyloid and senile plaques and cerebral blood vessels. A semi-quantitative investigation of a possible relationship. *J Neurol Sci* 1982;57:89-103.
 52. Premkumar DR, Cohen DL, Hedera P, Friedland RP, Kalaria RN. Apolipoprotein E-epsilon4 alleles in cerebral amyloid angiopathy and cerebrovascular pathology associated with Alzheimer's disease. *Am J Pathol* 1996;148:2083-2095.
 53. Shim YS, Yang DW, Roe CM, Coats MA, Benzinger TL, Xiong C,

- et al. Pathological correlates of white matter hyperintensities on magnetic resonance imaging. *Dement Geriatr Cogn Disord* 2015;39:92-104.
54. Sugarman MA, McKee AC, Stein TD, Tripodis Y, Besser LM, Martin B, et al. Failure to detect an association between self-reported traumatic brain injury and Alzheimer's disease neuropathology and dementia. *Alzheimers Dement* 2019;15:686-698.
 55. Wu E, Lipton RB, Dickson DW. Amyloid angiopathy in diffuse Lewy body disease. *Neurology* 1992;42:2131-2135.
 56. Xu Dan, Hu Yazhuo, Gui Qiuping, Zhu Mingwei, Zhang Honghong, Wang Luning. [Histomorphological features of brain aging: different types of cerebral amyloid angiopathy and beta-amyloid protein disposition in brain parenchyma]. *Chinese J Clin Rehabil* 2004;8:6885-6887. Chinese
 57. Yamada M. Risk factors for cerebral amyloid angiopathy in the elderly. *Ann N Y Acad Sci* 2002;977:37-44.
 58. Bell MA, Ball MJ. Neuritic plaques and vessels of visual cortex in aging and Alzheimer's dementia. *Neurobiol Aging* 1990;11:359-370.
 59. Boon BDC, Bulk M, Jonker AJ, Morrema THJ, van den Berg E, Popovic M, et al. The coarse-grained plaque: a divergent A β plaque-type in early-onset Alzheimer's disease. *Acta Neuropathol* 2020;140:811-830.
 60. Boyle PA, Yu L, Leurgans SE, Wilson RS, Brookmeyer R, Schneider JA, et al. Attributable risk of Alzheimer's dementia attributed to age-related neuropathologies. *Ann Neurol* 2019;85:114-124.
 61. Chen ZC, Gan J, Yang Y, Meng Q, Han J, Ji Y. The vascular risk factors and vascular neuropathology in subjects with autopsy-confirmed dementia with Lewy bodies. *Int J Geriatr Psychiatry* 2022;37:5683.
 62. Del Ser T, Hachinski V, Merskey H, Munoz DG. Alzheimer's disease with and without cerebral infarcts. *J Neurol Sci* 2005;231:3-11.
 63. Dugger BN, Clark CM, Serrano G, Mariner M, Bedell BJ, Coleman RE, et al. Neuropathologic heterogeneity does not impair florbetapir-positron emission tomography postmortem correlates. *J Neuropathol Exp Neurol* 2014;73:72-80.
 64. Ellis RJ, Olichney JM, Thal LJ, Mirra SS, Morris JC, Beekly D, et al. Cerebral amyloid angiopathy in the brains of patients with Alzheimer's disease: the CERAD experience, part XV. *Neurology* 1996;46:1592-1596.
 65. Fallet-Bianco C, Roudier M, Lamour Y, Davous P. [Neuropathologic study of 50 cases of senile dementia]. *Rev Neurol (Paris)* 1990;146:687-696. French
 66. Glenner GG, Henry JH, Fujihara S. Congophilic angiopathy in the pathogenesis of Alzheimer's degeneration. *Ann Pathol* 1981;1:120-129.
 67. Helman AM, Siever M, McCarty KL, Lott IT, Doran E, Abner EL, et al. Microbleeds and cerebral amyloid angiopathy in the brains of people with Down syndrome with Alzheimer's disease. *J Alzheimers Dis* 2019;67:103-112.
 68. Jellinger K. Cerebrovascular amyloidosis with cerebral hemorrhage. *J Neurol* 1977;214:195-206.
 69. Jellinger KA, Mitter-Ferstl E. The impact of cerebrovascular lesions in Alzheimer disease--a comparative autopsy study. *J Neurol* 2003;250:1050-1055.
 70. Jicha GA, Parisi JE, Dickson DW, Johnson K, Cha R, Ivnik RJ, et al. Neuropathologic outcome of mild cognitive impairment following progression to clinical dementia. *Arch Neurol* 2006;63:674-681.
 71. Joachim CL, Morris JH, Selkoe DJ. Clinically diagnosed Alzheimer's disease: autopsy results in 150 cases. *Ann Neurol* 1988;24:50-56.
 72. Kurucz J, Charbonneau R, Kurucz A, Ramsey P. Quantitative clinicopathologic study of cerebral amyloid angiopathy. *J Am Geriatr Soc* 1981;29:61-69.
 73. Leech RW, Brumback RA, Poduslo SE, Schiffer R, Adesina A. Dementia: the University of Oklahoma autopsy experience. *J Okla State Med Assoc* 2001;94:507-511.
 74. Liu D, Hk N, Man K, Luo X, Yang L, Sun Z. [Pathomorphological and amyloid beta-protein immunohistochemical findings in autopsied brains of Alzheimer's disease]. *Zhonghua Bing Li Xue Za Zhi* 1999;28:405-408. Chinese
 75. Lopez OL, Claassen D. Cerebral amyloid angiopathy in Alzheimer's disease: clinicopathological correlations. *Dementia* 1991;2:285-290.
 76. Mandybur TI. The incidence of cerebral amyloid angiopathy in Alzheimer's disease. *Neurology* 1975;25:120-126.
 77. Mann DMA, Davidson YS, Robinson AC, Allen N, Hashimoto T, Richardson A, et al. Patterns and severity of vascular amyloid in Alzheimer's disease associated with duplications and missense mutations in APP gene, Down syndrome and sporadic Alzheimer's disease. *Acta Neuropathol* 2018;136:569-587.
 78. Nation DA, Delano-Wood L, Bangen KJ, Wierenga CE, Jak AJ, Hansen LA, et al. Antemortem pulse pressure elevation predicts cerebrovascular disease in autopsy-confirmed Alzheimer's disease. *J Alzheimers Dis* 2012;30:595-603.
 79. Olichney JM, Hansen LA, Hofstetter CR, Lee JH, Katzman R, Thal LJ. Association between severe cerebral amyloid angiopathy and cerebrovascular lesions in Alzheimer disease is not a spurious one attributable to apolipoprotein E4. *Arch Neurol* 2000;57:869-874.
 80. Parker JC Jr, Philpot J. Postmortem evaluation of Alzheimer's disease. *South Med J* 1985;78:1411-1413.

81. Pirtilä T, Mehta PD, Soininen H, Kim KS, Heinonen O, Paljärvi L, et al. Cerebrospinal fluid concentrations of soluble amyloid beta-protein and apolipoprotein E in patients with Alzheimer's disease: correlations with amyloid load in the brain. *Arch Neurol* 1996;53:189–193.
82. Pivtoraiko VN, Racic T, Abrahamson EE, Villemagne VL, Handen BL, Lott IT, et al. Postmortem neocortical 3H-PiB binding and levels of unmodified and pyroglutamate A β in Down syndrome and sporadic Alzheimer's disease. *Front Aging Neurosci* 2021; 13:728739.
83. Reimand J, Boon BDC, Collij LE, Teunissen CE, Rozemuller AJM, van Berckel BNM, et al. Amyloid- β PET and CSF in an autopsy-confirmed cohort. *Ann Clin Transl Neurol* 2020;7:2150–2160.
84. Shinohara M, Murray ME, Frank RD, Shinohara M, DeTure M, Yamazaki Y, et al. Impact of sex and APOE4 on cerebral amyloid angiopathy in Alzheimer's disease. *Acta Neuropathol* 2016; 132:225–234.
85. Spina S, La Joie R, Petersen C, Nolan AL, Cuevas D, Cosme C, et al. Comorbid neuropathological diagnoses in early versus late-onset Alzheimer's disease. *Brain* 2021;144:2186–2198.
86. Tomimoto H, Akiguchi I, Akiyama H, Ikeda K, Wakita H, Lin JX, et al. Vascular changes in white matter lesions of Alzheimer's disease. *Acta Neuropathol* 1999;97:629–634.
87. Vik-Mo AO, Bencze J, Ballard C, Hortobágyi T, Aarsland D. Advanced cerebral amyloid angiopathy and small vessel disease are associated with psychosis in Alzheimer's disease. *J Neurol Neurosurg Psychiatry* 2019;90:728–730.
88. Yamada M, Tsukagoshi H, Otomo E, Hayakawa M. Systemic amyloid deposition in old age and dementia of Alzheimer type: the relationship of brain amyloid to other amyloid. *Acta Neuropathol* 1988;77:136–141.
89. Yip AG, McKee AC, Green RC, Wells J, Young H, Cupples LA, et al. APOE, vascular pathology, and the AD brain. *Neurology* 2005;65:259–265.
90. Zarow C, Zaias B, Lyness SA, Chui H. Cerebral amyloid angiopathy in Alzheimer disease is associated with apolipoprotein E4 and cortical neuron loss. *Alzheimer Dis Assoc Disord* 1999; 13:1–8.
91. Dye JA, Rees G, Yang I, Vespa PM, Martin NA, Vinters HV. Neuropathologic analysis of hematomas evacuated from patients with spontaneous intracerebral hemorrhage. *Neuropathology* 2014;34:253–260.
92. Fazekas F, Kleinert R, Roob G, Kleinert G, Kapeller P, Schmidt R, et al. Histopathologic analysis of foci of signal loss on gradient-echo T2*-weighted MR images in patients with spontaneous intracerebral hemorrhage: evidence of microangiopathy-related microbleeds. *AJNR Am J Neuroradiol* 1999;20: 637–642.
93. Holling M, Jeibmann A, Fischer BR, Albert FK, Ebel H, Paulus W, et al. Histopathological analysis of intracerebral hemorrhage: implications for clinical management. *Acta Neurochir (Wien)* 2012;154:439–443.
94. Ishihara T, Takahashi M, Yokota T, Yamashita Y, Gondo T, Uchino F, et al. The significance of cerebrovascular amyloid in the aetiology of superficial (lobar) cerebral haemorrhage and its incidence in the elderly population. *J Pathol* 1991;165: 229–234.
95. Lieber AC, McNeill IT, Scaggiante J, Nistal DA, Fowkes M, Umphlett M, et al. Biopsy during minimally invasive intracerebral hemorrhage clot evacuation. *World Neurosurg* 2019; 124:e169–e175.
96. Mendel TA, Wierzba-Bobrowicz T, Stępień T, Szpak GM. The association between cerebral amyloid angiopathy and atherosclerosis in patients with intracerebral hemorrhages. *Folia Neuropathol* 2013;51:243–249.
97. Ritter MA, Droste DW, Hegedüs K, Szepesi R, Nabavi DG, Csiba L, et al. Role of cerebral amyloid angiopathy in intracerebral hemorrhage in hypertensive patients. *Neurology* 2005;64: 1233–1237.
98. Rodrigues MA, Samarasekera N, Lerpiniere C, Humphreys C, McCarron MO, White PM, et al. The Edinburgh CT and genetic diagnostic criteria for lobar intracerebral haemorrhage associated with cerebral amyloid angiopathy: model development and diagnostic test accuracy study. *Lancet Neurol* 2018;17:232–240.
99. Tang YJ, Li Y, Wang S, Zhu MW, Sun YL, Zhao JZ. The incidence of cerebral amyloid angiopathy in surgically treated intracranial hemorrhage in the Chinese population. *Neurosurg Rev* 2013;36:533–539.
100. Baron JC, Boulouis G, Benzakoun J, Schwall C, Oppenheim C, Turc G, et al. Cerebral amyloid angiopathy-related acute lobar intra-cerebral hemorrhage: diagnostic value of plain CT. *J Neurol* 2022;269:2126–2132.
101. Doden T, Sato H, Sasahara E, Murata T, Yako T, Kitazawa K, et al. Clinico-radiological characteristics and pathological diagnosis of cerebral amyloid angiopathy-related intracerebral hemorrhage. *J Stroke Cerebrovasc Dis* 2016;25:1736–1745.
102. Itoh Y, Yamada M, Hayakawa M, Otomo E, Miyatake T. Cerebral amyloid angiopathy: a significant cause of cerebellar as well as lobar cerebral hemorrhage in the elderly. *J Neurol Sci* 1993;116:135–141.
103. Knudsen KA, Rosand J, Karluk D, Greenberg SM. Clinical diagnosis of cerebral amyloid angiopathy: validation of the Boston criteria. *Neurology* 2001;56:537–539.
104. Lin CM, Arishima H, Kikuta KI, Naiki H, Kitai R, Kadera T, et al. Pathological examination of cerebral amyloid angiopathy

- in patients who underwent removal of lobar hemorrhages. *J Neurol* 2018;265:567–577.
105. Minakawa T, Takeuchi S, Sasaki O, Koizumi T, Honad Y, Fujii Y, et al. Surgical experience with massive lobar haemorrhage caused by cerebral amyloid angiopathy. *Acta Neurochir (Wien)* 1995;132:48–52.
 106. Yoshimura M, Yamanouchi H, Kuzuhara S, Mori H, Sugiura S, Mizutani T, et al. Dementia in cerebral amyloid angiopathy: a clinicopathological study. *J Neurol* 1992;239:441–450.
 107. Aarts N, Akoudad S, Noordam R, Hofman A, Ikram MA, Stricker BH, et al. Inhibition of serotonin reuptake by antidepressants and cerebral microbleeds in the general population. *Stroke* 2014;45:1951–1957.
 108. Chung CP, Chou KH, Chen WT, Liu LK, Lee WJ, Chen LK, et al. Cerebral microbleeds are associated with physical frailty: a community-based study. *Neurobiol Aging* 2016;44:143–150.
 109. Elmståhl S, Ellström K, Siennicki-Lantz A, Abul-Kasim K. Association between cerebral microbleeds and hypertension in the Swedish general population “Good Aging in Skåne” study. *J Clin Hypertens (Greenwich)* 2019;21:1099–1107.
 110. Graff-Radford J, Lesnick T, Rabinstein AA, Gunter JL, Przybelski SA, Noseworthy PA, et al. Cerebral microbleeds: relationship to antithrombotic medications. *Stroke* 2021;52:2347–2355.
 111. Han F, Zhai FF, Wang Q, Zhou LX, Ni J, Yao M, et al. Prevalence and risk factors of cerebral small vessel disease in a Chinese population-based sample. *J Stroke* 2018;20:239–246.
 112. Kim CK, Kwon HT, Kwon HM. No significant association of aspirin use with cerebral microbleeds in the asymptomatic elderly. *J Neurol Sci* 2012;319:56–58.
 113. Miwa K, Tanaka M, Okazaki S, Yagita Y, Sakaguchi M, Mochizuki H, et al. Multiple or mixed cerebral microbleeds and dementia in patients with vascular risk factors. *Neurology* 2014;83:646–653.
 114. Paganini-Hill A, Bryant N, Corrada MM, Greenia DE, Fletcher E, Singh B, et al. Blood pressure circadian variation, cognition and brain imaging in 90+ year-olds. *Front Aging Neurosci* 2019;11:54.
 115. Qiu C, Cotch MF, Sigurdsson S, Eiriksdottir G, Jonasson F, Klein R, et al. Cerebral microbleeds and age-related macular degeneration: the AGES-Reykjavik study. *Neurobiol Aging* 2012; 33:2935–2937.
 116. Romero JR, Preis SR, Beiser A, DeCarli C, Viswanathan A, Martinez-Ramirez S, et al. Risk factors, stroke prevention treatments, and prevalence of cerebral microbleeds in the Framingham heart study. *Stroke* 2014;45:1492–1494.
 117. Tsushima Y, Aoki J, Endo K. Brain microhemorrhages detected on T2*-weighted gradient-echo MR images. *AJNR Am J Neuroradiol* 2003;24:88–96.
 118. Wang Y, Jiang Y, Suo C, Yuan Z, Xu K, Yang Q, et al. Deep/mixed cerebral microbleeds are associated with cognitive dysfunction through thalamocortical connectivity disruption: the Taizhou imaging study. *Neuroimage Clin* 2019;22:101749.
 119. Ying YQ, Wang YQ, Xia YW, Wu DH, Wu WW, Cheng X, et al. [The analysis of association between imaging biomarkers of cerebral small vessel disease and cognitive impairment: a Shanghai elderly community-based cohort]. *Chinese J Contemp Neurol Neurosurg* 2021;21:843–852. Chinese
 120. Yubi T, Hata J, Ohara T, Mukai N, Hirakawa Y, Yoshida D, et al. Prevalence of and risk factors for cerebral microbleeds in a general Japanese elderly community. *Neurol Clin Pract* 2018; 8:223–231.
 121. Atri A, Locascio JJ, Lin JM, Yap L, Dickerson BC, Grodstein F, et al. Prevalence and effects of lobar microhemorrhages in early-stage dementia. *Neurodegener Dis* 2005;2:305–312.
 122. Barnaure I, Montandon ML, Rodriguez C, Herrmann F, Lövblad KO, Giannakopoulos P, et al. Clinicoradiologic correlations of cerebral microbleeds in advanced age. *AJNR Am J Neuroradiol* 2017;38:39–45.
 123. Brundel M, Reijmer YD, van Veluw SJ, Kuijf HJ, Luijten PR, Kappelle LJ, et al. Cerebral microvascular lesions on high-resolution 7-Tesla MRI in patients with type 2 diabetes. *Diabetes* 2014;63:3523–3529.
 124. Chang Y, Liu J, Wang L, Li X, Wang Z, Lin M, et al. Diagnostic utility of integrated 11C-Pittsburgh compound B positron emission tomography/magnetic resonance for cerebral amyloid angiopathy: a pilot study. *Front Aging Neurosci* 2021;13: 721780.
 125. Chiang GC, Cruz Hernandez JC, Kantarci K, Jack CR Jr, Weiner MW; Alzheimer’s Disease Neuroimaging Initiative. Cerebral microbleeds, CSF p-Tau, and cognitive decline: significance of anatomic distribution. *AJNR Am J Neuroradiol* 2015;36:1635–1641.
 126. Donaghy PC, Firbank M, Mitra D, Petrides G, Lloyd J, Barnett N, et al. Microbleeds in dementia with Lewy bodies. *J Neurol* 2020;267:1491–1498.
 127. Graff-Radford J, Simino J, Kantarci K, Mosley TH Jr, Griswold ME, Windham BG, et al. Neuroimaging correlates of cerebral microbleeds: the ARIC study (Atherosclerosis Risk in Communities). *Stroke* 2017;48:2964–2972.
 128. Gregg NM, Kim AE, Gurol ME, Lopez OL, Aizenstein HJ, Price JC, et al. Incidental cerebral microbleeds and cerebral blood flow in elderly individuals. *JAMA Neurol* 2015;72:1021–1028.
 129. Ham JH, Yi H, Sunwoo MK, Hong JY, Sohn YH, Lee PH. Cerebral microbleeds in patients with Parkinson’s disease. *J Neurol* 2014;261:1628–1635.
 130. Johansson E, Ambarki K, Birgander R, Bahrami N, Eklund A,

- Malm J. Cerebral microbleeds in idiopathic normal pressure hydrocephalus. *Fluids Barriers CNS* 2016;13:4.
131. Kwon HM, Park JH, Park JH, Jeong HY, Lim JS, Jeong HG, et al. Visceral fat is an independent predictor of cerebral microbleeds in neurologically healthy people. *Cerebrovasc Dis* 2016; 42:90-96.
 132. Mendes A, Bertrand A, Lamari F, Colliot O, Routier A, Godefroy O, et al. Cerebral microbleeds and CSF Alzheimer biomarkers in primary progressive aphasia. *Neurology* 2018;90: e1057-e1065.
 133. Mitaki S, Nagai A, Oguro H, Yamaguchi S. Serum lipid fractions and cerebral microbleeds in a healthy Japanese population. *Cerebrovasc Dis* 2017;43:186-191.
 134. Nakata-Kudo Y, Mizuno T, Yamada K, Shiga K, Yoshikawa K, Mori S, et al. Microbleeds in Alzheimer disease are more related to cerebral amyloid angiopathy than cerebrovascular disease. *Dement Geriatr Cogn Disord* 2006;22:8-14.
 135. Ochi N, Tabara Y, Igase M, Nagai T, Kido T, Miki T, et al. Silent cerebral microbleeds associated with arterial stiffness in an apparently healthy subject. *Hypertens Res* 2009;32:255-260.
 136. Romero JR, Demissie S, Beiser A, Himali JJ, DeCarli C, Levy D, et al. Relation of plasma β -amyloid, clusterin, and tau with cerebral microbleeds: Framingham heart study. *Ann Clin Transl Neurol* 2020;7:1083-1091.
 137. Roob G, Schmidt R, Kapeller P, Lechner A, Hartung HP, Fazekas F. MRI evidence of past cerebral microbleeds in a healthy elderly population. *Neurology* 1999;52:991-994.
 138. Wang PN, Chou KH, Peng LN, Liu LK, Lee WJ, Chen LK, et al. Strictly lobar cerebral microbleeds are associated with increased white matter volume. *Transl Stroke Res* 2020;11:29-38.
 139. Wollenweber FA, Baykara E, Zedde M, Gesierich B, Achmüller M, Jouvent E, et al. Cortical superficial siderosis in different types of cerebral small vessel disease. *Stroke* 2017;48:1404-1407.
 140. Yakushiji Y, Noguchi T, Charidimou A, Eriguchi M, Nishihara M, Hara M, et al. Basal ganglia cerebral microbleeds and global cognitive function: the Kashima scan study. *J Stroke Cerebrovasc Dis* 2015;24:431-439.
 141. Yilmaz P, Ikram MA, Ikram MK, Niessen WJ, Viswanathan A, Charidimou A, et al. Application of an imaging-based sum score for cerebral amyloid angiopathy to the general population: risk of major neurological diseases and mortality. *Front Neurol* 2019;10:1276.
 142. Zhang J, Liu L, Sun H, Li M, Li Y, Zhao J, et al. Cerebral microbleeds are associated with mild cognitive impairment in patients with hypertension. *J Am Heart Assoc* 2018;7:e008453.
 143. Benedictus MR, Goos JD, Binnewijzend MA, Muller M, Barkhof F, Scheltens P, et al. Specific risk factors for microbleeds and white matter hyperintensities in Alzheimer's disease. *Neurobiol Aging* 2013;34:2488-2494.
 144. Boyano I, Ramos A, López-Alvarez J, Mendoza-Rebolledo C, Osa-Ruiz E, Rodríguez I, et al. Cerebral microbleeds in advanced dementia: clinical and pathological correlates. *Am J Alzheimers Dis Other Demen* 2018;33:362-372.
 145. Charidimou A, Ni J, Martínez-Ramírez S, Vashkevich A, Ayres A, Rosand J, et al. Cortical superficial siderosis in memory clinic patients: further evidence for underlying cerebral amyloid angiopathy. *Cerebrovasc Dis* 2016;41:156-162.
 146. Chiu WT, Lee TY, Chan L, Wu D, Huang LK, Chen DY, et al. Deep cerebral microbleeds are associated with poor cholinesterase inhibitor treatment response in people with Alzheimer disease. *Clin Neurol Neurosurg* 2020;195:105959.
 147. De Kort AM, Kuiperij HB, Kersten I, Versleijen AAM, Schreuder FHBM, Van Nostrand WE, et al. Normal cerebrospinal fluid concentrations of PDGFR β in patients with cerebral amyloid angiopathy and Alzheimer's disease. *Alzheimers Dement* 2022; 18:1788-1796.
 148. Ikeda M, Kodaira S, Kasahara H, Takai E, Nagashima K, Fujita Y, et al. Cerebral microbleeds, cerebrospinal fluid, and neuroimaging markers in clinical subtypes of Alzheimer's disease. *Front Neurol* 2021;12:543866.
 149. Inoue Y, Nakajima M, Uetani H, Hirai T, Ueda M, Kitajima M, et al. Diagnostic significance of cortical superficial siderosis for Alzheimer disease in patients with cognitive impairment. *AJNR Am J Neuroradiol* 2016;37:223-227.
 150. Kuroda T, Honma M, Mori Y, Futamura A, Sugimoto A, Yano S, et al. Increased presence of cerebral microbleeds correlates with ventricular enlargement and increased white matter hyperintensities in Alzheimer's disease. *Front Aging Neurosci* 2020;12:13.
 151. Mendes A, Herrmann FR, Scheffler M, Gabriel G, Sveikata L, Rakotomiramanana B, et al. Cortical superficial siderosis: a descriptive analysis in a memory clinic population. *J Alzheimers Dis* 2020;73:1467-1479.
 152. Nagasawa J, Kiyozaka T, Ikeda K. Prevalence and clinicoradiological analyses of patients with Alzheimer disease coexisting multiple microbleeds. *J Stroke Cerebrovasc Dis* 2014; 23:2444-2449.
 153. Noguchi-Shinohara M, Komatsu J, Samuraki M, Matsunari I, Ikeda T, Sakai K, et al. Cerebral amyloid angiopathy-related microbleeds and cerebrospinal fluid biomarkers in Alzheimer's disease. *J Alzheimers Dis* 2017;55:905-913.
 154. Shams S, Martola J, Charidimou A, Cavallin L, Granberg T, Shams M, et al. Cortical superficial siderosis: prevalence and biomarker profile in a memory clinic population. *Neurology*

- 2016;87:1110-1117.
155. Sparacia G, Agnello F, La Tona G, Iaia A, Midiri F, Sparacia B. Assessment of cerebral microbleeds by susceptibility-weighted imaging in Alzheimer's disease patients: a neuroimaging biomarker of the disease. *Neuroradiol J* 2017;30:330-335.
 156. van der Vlies AE, Goos JD, Barkhof F, Scheltens P, van der Flier WM. Microbleeds do not affect rate of cognitive decline in Alzheimer disease. *Neurology* 2012;79:763-769.
 157. Zhang JB, Li MF, Zhang HX, Li ZG, Sun HR, Zhang JS, et al. Association of serum vascular endothelial growth factor levels and cerebral microbleeds in patients with Alzheimer's disease. *Eur J Neurol* 2016;23:1337-1342.
 158. Biffi A, Rattani A, Anderson CD, Ayres AM, Gurol EM, Greenberg SM, et al. Delayed seizures after intracerebral haemorrhage. *Brain* 2016;139(Pt 10):2694-2705.
 159. Ghelmez D, Sorin Tuță S, Popa C. Cerebral microbleeds (CMBs) - relevance for mechanisms of cerebral hemorrhage--analysis of 24 MRI evaluated patients. *J Med Life* 2013;6:437-439.
 160. Haussen DC, Henninger N, Kumar S, Selim M. Statin use and microbleeds in patients with spontaneous intracerebral hemorrhage. *Stroke* 2012;43:2677-2681.
 161. Jolink WM, Lindenholtz A, van Etten ES, van Nieuwenhuizen KM, Schreuder FH, Kuijff HJ, et al. Contrast leakage distant from the hematoma in patients with spontaneous ICH: a 7 T MRI study. *J Cereb Blood Flow Metab* 2020;40:1002-1011.
 162. Laible M, Horstmann S, Möhlenbruch M, Wegele C, Rizos T, Schüler S, et al. Renal dysfunction is associated with deep cerebral microbleeds but not white matter hyperintensities in patients with acute intracerebral hemorrhage. *J Neurol* 2015;262:2312-2322.
 163. Martí-Fàbregas J, Delgado-Mederos R, Granell E, Morenas Rodríguez E, Marín Lahoz J, Dinya L, et al. Microbleed burden and hematoma expansion in acute intracerebral hemorrhage. *Eur Neurol* 2013;70:175-178.
 164. Schwarz G, Banerjee G, Hostettler IC, Ambler G, Seiffge DJ, Brookes TS, et al. Magnetic resonance imaging-based scores of small vessel diseases: associations with intracerebral haemorrhage location. *J Neurol Sci* 2022;434:120165.
 165. Tsai HH, Tsai LK, Chen YF, Tang SC, Lee BC, Yen RF, et al. Correlation of cerebral microbleed distribution to amyloid burden in patients with primary intracerebral hemorrhage. *Sci Rep* 2017;7:44715.
 166. Wang X, Feng H, Wang Y, Zhou J, Zhao X. Enlarged perivascular spaces and cerebral small vessel disease in spontaneous intracerebral hemorrhage patients. *Front Neurol* 2019;10:881.
 167. Xu M, Cheng Y, Song Q, Yuan R, Zhang S, Hao Z, et al. Total burden of cerebral small vessel disease in recurrent ICH versus first-ever ICH. *Aging Dis* 2019;10:570-577.
 168. Schwarz G, Banerjee G, Hostettler IC, Ambler G, Seiffge DJ, Ozkan H, et al. MRI and CT imaging biomarkers of cerebral amyloid angiopathy in lobar intracerebral hemorrhage. *Int J Stroke* 2023;18:85-94.
 169. Pichler M, Vemuri P, Rabinstein AA, Aakre J, Flemming KD, Brown RD Jr, et al. Prevalence and natural history of superficial siderosis: a population-based study. *Stroke* 2017;48:3210-3214.
 170. Shoamanesh A, Morotti A, Romero JM, Oliveira-Filho J, Schlunk F, Jessel MJ, et al. Cerebral microbleeds and the effect of intensive blood pressure reduction on hematoma expansion and functional outcomes: a secondary analysis of the ATACH-2 randomized clinical trial. *JAMA Neurol* 2018;75:850-859.
 171. Cheng X, Su Y, Wang Q, Gao F, Ye X, Wang Y, et al. Neurofilament light chain predicts risk of recurrence in cerebral amyloid angiopathy-related intracerebral hemorrhage. *Aging (Albany NY)* 2020;12:23727-23738.
 172. Carmona-Iragui M, Balasa M, Benejam B, Alcolea D, Fernández S, Videla L, et al. Cerebral amyloid angiopathy in Down syndrome and sporadic and autosomal-dominant Alzheimer's disease. *Alzheimers Dement* 2017;13:1251-1260.
 173. Na HK, Park JH, Kim JH, Kim ST, Werring DJ, et al. Cortical superficial siderosis: a marker of vascular amyloid in patients with cognitive impairment. *Neurology* 2015;84:849-855.
 174. Tsai HH, Chen YF, Yen RF, Lo YL, Yang KC, Jeng JS, et al. Plasma soluble TREM2 is associated with white matter lesions independent of amyloid and tau. *Brain* 2021;144:3371-3380.
 175. Umino M, Maeda M, Kogue R, Nakamura S, Li Y, Tomimoto H, et al. Evaluation of cortical superficial siderosis in patients with cognitive dysfunction using 3D FLAIR and 3D DIR. *Eur Radiol* 2021;31:6411-6418.
 176. Zonneveld HI, Goos JD, Wattjes MP, Prins ND, Scheltens P, van der Flier WM, et al. Prevalence of cortical superficial siderosis in a memory clinic population. *Neurology* 2014;82:698-704.
 177. Castello JP, Pasi M, Kubiszewski P, Abramson JR, Charidimou A, Kourkoulis C, et al. Cerebral small vessel disease and depression among intracerebral hemorrhage survivors. *Stroke* 2022;53:523-531.
 178. Damien C, Cisse F, Ligot N, Toure ML, Konaté M, Barry SD, et al. Insights in the pathophysiology of haemorrhagic strokes in a sub-Saharan African country, an epidemiological and MRI study. *Trop Med Int Health* 2021;26:166-172.
 179. Moulin S, Casolla B, Kuchcinski G, Boulouis G, Rossi C, Hénon H, et al. Cortical superficial siderosis: a prospective observa-

- tional cohort study. *Neurology* 2018;91:e132–e138.
180. Pinho J, Araújo JM, Costa AS, Silva F, Francisco A, Quintas-Neves M, et al. Intracerebral hemorrhage recurrence in patients with and without cerebral amyloid angiopathy. *Cerebrovasc Dis Extra* 2021;11:15–21.
 181. Suda S, Shimoyama T, Suzuki S, Ouchi T, Arakawa M, Aoki J, et al. Prevalence and clinical characteristics of cortical superficial siderosis in patients with acute stroke. *J Neurol* 2017; 264:2413–2419.
 182. Tsai HH, Chen SJ, Tsai LK, Pasi M, Lo YL, Chen YF, et al. Long-term vascular outcomes in patients with mixed location intracerebral hemorrhage and microbleeds. *Neurology* 2021; 96:e995–e1004.
 183. Ye X, Li G, Liu X, Song G, Jia Y, Wu C, et al. Apolipoprotein E genotype predicts subarachnoid extension in spontaneous intracerebral haemorrhage. *Eur J Neurol* 2021;28:1992–1999.
 184. Boulouis G, van Etten ES, Charidimou A, Auriel E, Morotti A, Pasi M, et al. Association of key magnetic resonance imaging markers of cerebral small vessel disease with hematoma volume and expansion in patients with lobar and deep intracerebral hemorrhage. *JAMA Neurol* 2016;73:1440–1447.
 185. Renard D, Parvu T, Tatu L, Thouvenot E. Subarachnoid extension of lobar hemorrhage on acute/subacute MRI is associated with cerebral amyloid angiopathy criteria. *Acta Neurol Belg* 2020;120:863–866.
 186. Yakushiji Y, Tanaka J, Wilson D, Charidimou A, Noguchi T, Kawashima M, et al. Proportion of intracerebral haemorrhage due to cerebral amyloid angiopathy in the East and West: comparison between single hospital centres in Japan and the United Kingdom. *J Neurol Sci* 2020;416:117037.
 187. Viguier A, Raposo N, Patsoura S, Calviere L, Albucher JF, Ruidavets JB, et al. Subarachnoid and subdural hemorrhages in lobar intracerebral hemorrhage associated with cerebral amyloid angiopathy. *Stroke* 2019;50:1567–1569.
 188. van Rooden S, Goos JD, van Opstal AM, Versluis MJ, Webb AG, Blauw GJ, et al. Increased number of microinfarcts in Alzheimer disease at 7-T MR imaging. *Radiology* 2014;270:205–211.
 189. Charidimou A, Meegahage R, Fox Z, Peeters A, Vandermeeren Y, Laloux P, et al. Enlarged perivascular spaces as a marker of underlying arteriopathy in intracerebral haemorrhage: a multicentre MRI cohort study. *J Neurol Neurosurg Psychiatry* 2013;84:624–629.
 190. Martí-Fàbregas J, Prats-Sánchez L, Martínez-Domeño A, Camps-Renom P, Marín R, Jiménez-Xarrié E, et al. The H-ATOMIC criteria for the etiologic classification of patients with intracerebral hemorrhage. *PLoS One* 2016;11:e0156992.
 191. Pasi M, Pongpitakmetha T, Charidimou A, Singh SD, Tsai HH, Xiong L, et al. Cerebellar microbleed distribution patterns and cerebral amyloid angiopathy. *Stroke* 2019;50:1727–1733.
 192. Pasi M, Charidimou A, Boulouis G, Auriel E, Ayres A, Schwab KM, et al. Mixed-location cerebral hemorrhage/microbleeds: underlying microangiopathy and recurrence risk. *Neurology* 2018;90:e119–e126.
 193. Segal AZ, Chiu RI, Eggleston-Sexton PM, Beiser A, Greenberg SM. Low cholesterol as a risk factor for primary intracerebral hemorrhage: a case-control study. *Neuroepidemiology* 1999; 18:185–193.
 194. Tsai HH, Pasi M, Tsai LK, Chen YF, Lee BC, Tang SC, et al. Distribution of lacunar infarcts in Asians with intracerebral hemorrhage: a magnetic resonance imaging and amyloid positron emission tomography study. *Stroke* 2018;49:1515–1517.
 195. Greenberg SM, Briggs ME, Hyman BT, Kokoris GJ, Takis C, Kanter DS, et al. Apolipoprotein E epsilon 4 is associated with the presence and earlier onset of hemorrhage in cerebral amyloid angiopathy. *Stroke* 1996;27:1333–1337.
 196. Jamieson EI, Newman D, Metcalf AK, Naguib MF, Saada J, Potter JF, et al. Dementia is strongly associated with 90-day mortality in lobar cerebral amyloid angiopathy related intracerebral haemorrhage. *J Neurol Sci* 2012;322:161–165.