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View Online

A. W. Cowley. (1992). Long-term control of arterial blood pressure. Physiological Reviews, 72(1), 231–300. http://physrev.physiology.org/content/72/1/231

Abbott, N. J., Patabendige, A. A. K., Dolman, D. E. M., Yusof, S. R., & Begley, D. J. (2010). Structure and function of the blood–brain barrier. Neurobiology of Disease, 37(1), 13–25. https://doi.org/10.1016/j.nbd.2009.07.030

Altaf, N., Goode, S. D., Beech, A., Gladman, J. R. F., Morgan, P. S., MacSweeney, S. T., & Auer, D. P. (2011). Plaque Hemorrhage Is a Marker of Thromboembolic Activity in Patients with Symptomatic Carotid Disease. Radiology, 258(2), 538–545. https://doi.org/10.1148/radiol.10100198

Altaf, N., MacSweeney, S. T., Gladman, J., & Auer, D. P. (2007). Carotid Intraplaque Hemorrhage Predicts Recurrent Symptoms in Patients With High-Grade Carotid Stenosis. Stroke, 38(5), 1633–1635. https://doi.org/10.1161/STROKEAHA.106.473066

Anderson, C. S., Heeley, E., Huang, Y., Wang, J., Stapf, C., Delcourt, C., Lindley, R., Robinson, T., Lavados, P., Neal, B., Hata, J., Arima, H., Parsons, M., Li, Y., Wang, J., Heritier, S., Li, Q., Woodward, M., Simes, R. J., … Chalmers, J. (2013). Rapid Blood-Pressure Lowering in Patients with Acute Intracerebral Hemorrhage. New England Journal of Medicine, 368(25), 2355–2365. https://doi.org/10.1056/NEJMoa1214609

Astrup, J., Symon, L., Branston, N. M., & Lassen, N. A. (1977). Cortical evoked potential and extracellular K+ and H+ at critical levels of brain ischemia. Stroke, 8(1), 51–57. https://doi.org/10.1161/01.STR.8.1.51

Atrial fibrillation: the management of atrial fibrillation | Guidance and guidelines | NICE. (n.d.). https://www.nice.org.uk/guidance/cg180

Attwell, D., Buchan, A. M., Charpak, S., Lauritzen, M., MacVicar, B. A., & Newman, E. A. (2010). Glial and neuronal control of brain blood flow. Nature, 468(7321), 232–243. https://doi.org/10.1038/nature09613

Barker, P. B., Golay, X., & Zaharchuk, G. (2013). Clinical perfusion MRI techniques and applications. Cambridge University Press.

Bohman, L.-E., & Levine, J. M. (2014). Fever and therapeutic normothermia in severe brain injury. Current Opinion in Critical Care, 20(2), 182–188. https://doi.org/10.1097/MCC.0000000000000070

Bridges, L. R., Andoh, J., Lawrence, A. J., Khoong, C. H. L., Poon, W. W., Esiri, M. M., Markus,

H. S., & Hainsworth, A. H. (2014). Blood-Brain Barrier Dysfunction and Cerebral Small Vessel Disease (Arteriolosclerosis) in Brains of Older People. Journal of Neuropathology & Experimental Neurology, 73(11), 1026–1033. https://doi.org/10.1097/NEN.0000000000000124

Chatzizisis, Y. S., Coskun, A. U., Jonas, M., Edelman, E. R., Feldman, C. L., & Stone, P. H. (2007). Role of Endothelial Shear Stress in the Natural History of Coronary Atherosclerosis and Vascular Remodeling. Journal of the American College of Cardiology, 49(25), 2379–2393. https://doi.org/10.1016/j.jacc.2007.02.059

Clarkson, A. N., Huang, B. S., MacIsaac, S. E., Mody, I., & Carmichael, S. T. (2010). Reducing excessive GABA-mediated tonic inhibition promotes functional recovery after stroke. Nature, 468(7321), 305–309. https://doi.org/10.1038/nature09511

Coupar, F., Pollock, A., Rowe, P., Weir, C., & Langhorne, P. (2012). Predictors of upper limb recovery after stroke: a systematic review and meta-analysis. Clinical Rehabilitation, 26 (4), 291–313. https://doi.org/10.1177/0269215511420305

Culmsee, C., & Krieglstein, J. (2007). Ischaemic brain damage after stroke: new insights into efficient therapeutic strategies. International Symposium on Neurodegeneration and Neuroprotection. EMBO Reports, 8(2), 129–133. https://doi.org/10.1038/sj.embor.7400892

del Zoppo, G. J., & Hallenbeck, J. M. (2000). Advances in the Vascular Pathophysiology of Ischemic Stroke. Thrombosis Research, 98(3), 73–81. https://doi.org/10.1016/S0049-3848(00)00218-8

Delcourt, C., & Anderson, C. (2012). Acute intracerebral haemorrhage: Grounds for optimism in management. Journal of Clinical Neuroscience, 19(12), 1622–1626. https://doi.org/10.1016/j.jocn.2012.05.018

Ferro, J. M. (2003). Cardioembolic stroke: an update. The Lancet Neurology, 2(3), 177–188. https://doi.org/10.1016/S1474-4422(03)00324-7

Fisch, A. (2012). Neuroanatomy: draw it to know it (2nd ed). Oxford University Press. http://dx.doi.org/10.1093/med/9780199845712.001.0001

Flower, Oliver. (n.d.). The acute management of intracerebral hemorrhage. Current Opinion in Critical Care, 17(2). http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00075198-201104000-00005&LSLINK=80&D=ovft

Furlan, M., Marchal, G., Derlon, J.-M., Baron, J.-C., & Viader, F. (1996). Spontaneous neurological recovery after stroke and the fate of the ischemic penumbra. Annals of Neurology, 40(2), 216–226. https://doi.org/10.1002/ana.410400213

Ginsberg, M. D. (2003). Adventures in the Pathophysiology of Brain Ischemia: Penumbra, Gene Expression, Neuroprotection: The 2002 Thomas Willis Lecture. Stroke, 34(1), 214–223. https://doi.org/10.1161/01.STR.0000048846.09677.62

Gioia, Laura C.a. (n.d.). Blood pressure management in acute intracerebral hemorrhage: current evidence and ongoing controversies. Current Opinion in Critical Care, 21(2).

http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00075198-201504000-00003&LSLINK=80&D=ovft

Gouw, A. A., Seewann, A., van der Flier, W. M., Barkhof, F., Rozemuller, A. M., Scheltens, P., & Geurts, J. J. G. (2011). Heterogeneity of small vessel disease: a systematic review of MRI and histopathology correlations. Journal of Neurology, Neurosurgery & Psychiatry, 82(2), 126–135. https://doi.org/10.1136/jnnp.2009.204685

Grise, Erin M. (n.d.). Blood pressure control for acute ischemic and hemorrhagic stroke. Current Opinion in Critical Care, 18(2). http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00075198-201204000-00005&LSLINK=80&D=ovft

Grotta, J. C., Albers, G. W., Broderick, J. P., Kasner, S. E., Lo, E. H., Mendelow, A. D., Sacco, R. L., & Wong, L. KS. (2015). Stroke: Pathophysiology, Diagnosis, and Management (6th ed) [Electronic resource]. Elsevier Health Sciences. http://www.sciencedirect.com/science/book/9780323295444

Grupke, S., Hall, J., Dobbs, M., Bix, G. J., & Fraser, J. F. (2015). Understanding history, and not repeating it. Neuroprotection for acute ischemic stroke: From review to preview. Clinical Neurology and Neurosurgery, 129, 1–9. https://doi.org/10.1016/j.clineuro.2014.11.013

Guidelines for Management of Ischaemic Stroke and Transient Ischaemic Attack 2008. (2008). Cerebrovascular Diseases, 25(5), 457–507. https://doi.org/10.1159/000131083

Gupta, A., Baradaran, H., Schweitzer, A. D., Kamel, H., Pandya, A., Delgado, D., Dunning, A., Mushlin, A. I., & Sanelli, P. C. (2013). Carotid Plaque MRI and Stroke Risk: A Systematic Review and Meta-analysis. Stroke, 44(11), 3071–3077. https://doi.org/10.1161/STROKEAHA.113.002551

Habs, M., Pfefferkorn, T., Cyran, C. C., Grimm, J., Rominger, A., Hacker, M., Opherk, C., Reiser, M. F., Nikolaou, K., & Saam, T. (2011). Age determination of vessel wall hematoma in spontaneous cervical artery dissection: A multi-sequence 3T Cardiovascular Magnetic resonance study. Journal of Cardiovascular Magnetic Resonance, 13(1). https://doi.org/10.1186/1532-429X-13-76

Hall, C. N., Reynell, C., Gesslein, B., Hamilton, N. B., Mishra, A., Sutherland, B. A., O'Farrell, F. M., Buchan, A. M., Lauritzen, M., & Attwell, D. (2014). Capillary pericytes regulate cerebral blood flow in health and disease. Nature, 508(7494), 55–60. https://doi.org/10.1038/nature13165

Hall, S. D., Stanford, I. M., Yamawaki, N., McAllister, C. J., Rönnqvist, K. C., Woodhall, G. L., & Furlong, P. L. (2011). The role of GABAergic modulation in motor function related neuronal network activity. NeuroImage, 56(3), 1506–1510. https://doi.org/10.1016/j.neuroimage.2011.02.025

Harris, J. J., Jolivet, R., & Attwell, D. (2012). Synaptic Energy Use and Supply. Neuron, 75 (5), 762–777. https://doi.org/10.1016/j.neuron.2012.08.019

Hart, R. G., Diener, H.-C., Coutts, S. B., Easton, J. D., Granger, C. B., O'Donnell, M. J., Sacco, R. L., & Connolly, S. J. (2014). Embolic strokes of undetermined source: the case for a new

clinical construct. The Lancet Neurology, 13(4), 429–438. https://doi.org/10.1016/S1474-4422(13)70310-7

Hemphill, J. C., Greenberg, S. M., Anderson, C. S., Becker, K., Bendok, B. R., Cushman, M., Fung, G. L., Goldstein, J. N., Macdonald, R. L., Mitchell, P. H., Scott, P. A., Selim, M. H., & Woo, D. (2015a). Guidelines for the Management of Spontaneous Intracerebral Hemorrhage. Stroke, 46(7), 2032–2060. https://doi.org/10.1161/STR.0000000000000069

Hemphill, J. C., Greenberg, S. M., Anderson, C. S., Becker, K., Bendok, B. R., Cushman, M., Fung, G. L., Goldstein, J. N., Macdonald, R. L., Mitchell, P. H., Scott, P. A., Selim, M. H., & Woo, D. (2015b). Guidelines for the Management of Spontaneous Intracerebral Hemorrhage. Stroke, 46(7), 2032–2060. https://doi.org/10.1161/STR.0000000000000069

Homma, S. (2005). Patent Foramen Ovale and Stroke. Circulation, 112(7), 1063–1072. https://doi.org/10.1161/CIRCULATIONAHA.104.524371

Hope, T. M. H., Seghier, M. L., Leff, A. P., & Price, C. J. (2013). Predicting outcome and recovery after stroke with lesions extracted from MRI images. NeuroImage: Clinical, 2, 424–433. https://doi.org/10.1016/j.nicl.2013.03.005

Hougaard, K. D., Hjort, N., Zeidler, D., Sorensen, L., Norgaard, A., Hansen, T. M., von Weitzel-Mudersbach, P., Simonsen, C. Z., Damgaard, D., Gottrup, H., Svendsen, K., Rasmussen, P. V., Ribe, L. R., Mikkelsen, I. K., Nagenthiraja, K., Cho, T.-H., Redington, A. N., Botker, H. E., Ostergaard, L., … Andersen, G. (2014). Remote Ischemic Perconditioning as an Adjunct Therapy to Thrombolysis in Patients With Acute Ischemic Stroke: A Randomized Trial. Stroke, 45(1), 159–167. https://doi.org/10.1161/STROKEAHA.113.001346

Jauch, E. C., Saver, J. L., Adams, H. P., Bruno, A., Connors, J. J., Demaerschalk, B. M., Khatri, P., McMullan, P. W., Qureshi, A. I., Rosenfield, K., Scott, P. A., Summers, D. R., Wang, D. Z., Wintermark, M., & Yonas, H. (2013). Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. Stroke, 44(3), 870–947. https://doi.org/10.1161/STR.0b013e318284056a

Jones, D. K. (2011). Diffusion MRI: theory, methods, and applications. Oxford University Press.

Kalanuria, Atul A.a , b. (n.d.). Early prognostication in acute brain damage: where is the evidence? Current Opinion in Critical Care, 19(2). http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00075198-201304000-00008&LSLINK=80&D=ovft

Kirkman, M. A., Citerio, G., & Smith, M. (2014). The intensive care management of acute ischemic stroke: an overview. Intensive Care Medicine, 40(5), 640–653. https://doi.org/10.1007/s00134-014-3266-z

Kirkman, Matthew A. MBBS*,†. (n.d.). Supratentorial Intracerebral Hemorrhage: A Review of the Underlying Pathophysiology and its Relevance for Multimodality Neuromonitoring in Neurointensive Care. Journal of Neurosurgical Anesthesiology, 25(3), 228–239. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00008506-201307000-00002&LSLINK=80&D=ovft

Krakauer, J., & Marshall, R. (2015). The proportional recovery rule for stroke revisited. Annals of Neurology, n/a-n/a. https://doi.org/10.1002/ana.24537

Krakauer, J. W., Carmichael, S. T., Corbett, D., & Wittenberg, G. F. (2012). Getting Neurorehabilitation Right: What Can Be Learned From Animal Models? Neurorehabilitation and Neural Repair, 26(8), 923–931. https://doi.org/10.1177/1545968312440745

Lees, K. R. (1998). Does neuroprotection improve stroke outcome? The Lancet, 351(9114), 1447–1448. https://doi.org/10.1016/S0140-6736(05)78865-6

Libby, P. (2002). Inflammation in atherosclerosis. Nature, 420(6917), 868–874. https://doi.org/10.1038/nature01323

Liu, J. Y. W., Thom, M., Catarino, C. B., Martinian, L., Figarella-Branger, D., Bartolomei, F., Koepp, M., & Sisodiya, S. M. (2012). Neuropathology of the blood-brain barrier and pharmaco-resistance in human epilepsy. Brain, 135(10), 3115–3133. https://doi.org/10.1093/brain/aws147

Lo, E. H. (2008). A new penumbra: transitioning from injury into repair after stroke. Nature Medicine, 14(5), 497–500. https://doi.org/10.1038/nm1735

Lo, E. H., Dalkara, T., & Moskowitz, M. A. (2003). Neurological diseases: Mechanisms, challenges and opportunities in stroke. Nature Reviews Neuroscience, 4(5), 399–414. https://doi.org/10.1038/nrn1106

Lok, J., Gupta, P., Guo, S., Kim, W. J., Whalen, M. J., van Leyen, K., & Lo, E. H. (2007). Cell–cell Signaling in the Neurovascular Unit. Neurochemical Research, 32(12), 2032–2045. https://doi.org/10.1007/s11064-007-9342-9

Malek, A. M. (1999). Hemodynamic Shear Stress and Its Role in Atherosclerosis. JAMA, 282 (21). https://doi.org/10.1001/jama.282.21.2035

Murphy, T. H., & Corbett, D. (2009). Plasticity during stroke recovery: from synapse to behaviour. Nature Reviews Neuroscience, 10(12), 861–872. https://doi.org/10.1038/nrn2735

Oeinck, M., Neunhoeffer, F., Buttler, K.-J., Meckel, S., Schmidt, B., Czosnyka, M., Weiller, C., & Reinhard, M. (2013). Dynamic Cerebral Autoregulation in Acute Intracerebral Hemorrhage. Stroke, 44(10), 2722–2728. https://doi.org/10.1161/STROKEAHA.113.001913

Pantoni, L. (2010). Cerebral small vessel disease: from pathogenesis and clinical characteristics to therapeutic challenges. The Lancet Neurology, 9(7), 689–701. https://doi.org/10.1016/S1474-4422(10)70104-6

Pantoni, L., & Gorelick, P. B. (Eds). (2014). Cerebral small vessel disease: Vol. Cambridge medicine. Cambridge University Press. http://dx.doi.org/10.1017/CBO9781139382694

Ramos-Cabrer, P., Campos, F., Sobrino, T., & Castillo, J. (2011). Targeting the Ischemic Penumbra. Stroke, 42(1, Supplement 1), S7–S11. https://doi.org/10.1161/STROKEAHA.110.596684

Rose, J. C., & Mayer, S. A. (2004). Optimizing Blood Pressure in Neurological Emergencies. Neurocritical Care, 1(3), 287–300. https://doi.org/10.1385/NCC:1:3:287

Sharp, F. R., Lu, A., Tang, Y., & Millhorn, D. E. (2000a). Multiple Molecular Penumbras After Focal Cerebral Ischemia. Journal of Cerebral Blood Flow and Metabolism, 1011–1032. https://doi.org/10.1097/00004647-200007000-00001

Sharp, F. R., Lu, A., Tang, Y., & Millhorn, D. E. (2000b). Multiple Molecular Penumbras After Focal Cerebral Ischemia. Journal of Cerebral Blood Flow and Metabolism, 1011–1032. https://doi.org/10.1097/00004647-200007000-00001

Smith, Martin MBBS, FRCA. (n.d.). Monitoring Intracranial Pressure in Traumatic Brain Injury. Anesthesia & Analgesia, 106(1), 240–248. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00000539-200801000-00042&LSLINK=80&D=ovft

Sposato, L. A., Cipriano, L. E., Riccio, P. M., Hachinski, V., & Saposnik, G. (2015). Very short paroxysms account for more than half of the cases of atrial fibrillation detected after stroke and TIA: a systematic review and meta-analysis. International Journal of Stroke, 10 (6), 801–807. https://doi.org/10.1111/ijs.12555

Staessen, J. A., Wang, J., Bianchi, G., & Birkenhäger, W. H. (2003). Essential hypertension. The Lancet, 361(9369), 1629–1641. https://doi.org/10.1016/S0140-6736(03)13302-8

Stary, H. C., Chandler, A. B., Dinsmore, R. E., Fuster, V., Glagov, S., Insull, W., Rosenfeld, M. E., Schwartz, C. J., Wagner, W. D., & Wissler, R. W. (1995). A Definition of Advanced Types of Atherosclerotic Lesions and a Histological Classification of Atherosclerosis : A Report From the Committee on Vascular Lesions of the Council on Arteriosclerosis, American Heart Association. Circulation, 92(5), 1355–1374. https://doi.org/10.1161/01.CIR.92.5.1355

Stinear, C. M., Barber, P. A., Petoe, M., Anwar, S., & Byblow, W. D. (2012). The PREP algorithm predicts potential for upper limb recovery after stroke. Brain, 135(8), 2527–2535. https://doi.org/10.1093/brain/aws146

T A Yousry. (1997). Localization of the motor hand area to a knob on the precentral gyrus. A new landmark. Brain, 120(1), 141–157. http://brain.oxfordjournals.org/content/120/1/141

T P Obrenovitch. (1995). The ischaemic penumbra: Twenty years on. Cerebrovascular and Brain Metabolism Reviews, 7(4).

Taheri, S., Gasparovic, C., Huisa, B. N., Adair, J. C., Edmonds, E., Prestopnik, J., Grossetete, M., Shah, N. J., Wills, J., Qualls, C., & Rosenberg, G. A. (2011). Blood-Brain Barrier Permeability Abnormalities in Vascular Cognitive Impairment. Stroke, 42(8), 2158–2163. https://doi.org/10.1161/STROKEAHA.110.611731

Virmani, R., Kolodgie, F. D., Burke, A. P., Farb, A., & Schwartz, S. M. (2000). Lessons From Sudden Coronary Death : A Comprehensive Morphological Classification Scheme for Atherosclerotic Lesions. Arteriosclerosis, Thrombosis, and Vascular Biology, 20(5), 1262–1275. https://doi.org/10.1161/01.ATV.20.5.1262

Wakili, R., Voigt, N., KÃ¤Ã¤b, S., Dobrev, D., & Nattel, S. (2011). Recent advances in the molecular pathophysiology of atrial fibrillation. Journal of Clinical Investigation, 121(8), 2955–2968. https://doi.org/10.1172/JCI46315

Wang, Y., Reis, C., Applegate, R., Stier, G., Martin, R., & Zhang, J. H. (2015). Ischemic conditioning-induced endogenous brain protection: Applications pre-, per- or post-stroke. Experimental Neurology. https://doi.org/10.1016/j.expneurol.2015.04.009

Ward, N. S. (2015a). Does neuroimaging help to deliver better recovery of movement after stroke? Current Opinion in Neurology, 28(4), 323–329. https://doi.org/10.1097/WCO.0000000000000223

Ward, N. S. (2015b). Using oscillations to understand recovery after stroke. Brain, 138(10), 2811–2813. https://doi.org/10.1093/brain/awv265

Wardlaw, J. M., Sandercock, P. A. G., Dennis, M. S., Starr, J., & Kalimo, H. (2003). Is Breakdown of the Blood-Brain Barrier Responsible for Lacunar Stroke, Leukoaraiosis, and Dementia? Stroke, 34(3), 806–812. https://doi.org/10.1161/01.STR.0000058480.77236.B3

Wartenberg, Katja E. (n.d.). Malignant middle cerebral artery infarction. Current Opinion in Critical Care, 18(2). http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&AN=00075198-201204000-00008&LSLINK=80&D=ovft

Wilson, D., Adams, M. E., Robertson, F., Murphy, M., & Werring, D. J. (2015). Investigating intracerebral haemorrhage. BMJ, 350(may20 10), h2484–h2484. https://doi.org/10.1136/bmj.h2484

Wilson, D., Charidimou, A., & Werring, D. J. (2014). Advances in understanding spontaneous intracerebral hemorrhage: insights from neuroimaging. Expert Review of Neurotherapeutics, 14(6), 661–678. https://doi.org/10.1586/14737175.2014.918506

Wolf, P. A., Abbott, R. D., & Kannel, W. B. (1991). Atrial fibrillation as an independent risk factor for stroke: the Framingham Study. Stroke, 22(8), 983–988. https://doi.org/10.1161/01.STR.22.8.983

Yuan, C., Kerwin, W. S., Yarnykh, V. L., Cai, J., Saam, T., Chu, B., Takaya, N., Ferguson, M. S., Underhill, H., Xu, D., Liu, F., & Hatsukami, T. S. (2006). MRI of atherosclerosis in clinical trials. NMR in Biomedicine, 19(6), 636–654. https://doi.org/10.1002/nbm.1065

Zeiler, S. R., & Krakauer, J. W. (2013). The interaction between training and plasticity in the poststroke brain. Current Opinion in Neurology, 26(6), 609–616. https://doi.org/10.1097/WCO.0000000000000025

Zhao, Z., Sagare, A. P., Ma, Q., Halliday, M. R., Kong, P., Kisler, K., Winkler, E. A., Ramanathan, A., Kanekiyo, T., Bu, G., Owens, N. C., Rege, S. V., Si, G., Ahuja, A., Zhu, D., Miller, C. A., Schneider, J. A., Maeda, M., Maeda, T., … Zlokovic, B. V. (2015). Central role for PICALM in amyloid-β blood-brain barrier transcytosis and clearance. Nature Neuroscience, 18(7), 978–987. https://doi.org/10.1038/nn.4025

Zlokovic, B. V. (2008). The Blood-Brain Barrier in Health and Chronic Neurodegenerative

Disorders. Neuron, 57(2), 178–201. https://doi.org/10.1016/j.neuron.2008.01.003

Zlokovic, B. V. (2013). Cerebrovascular Effects of Apolipoprotein E. JAMA Neurology, 70(4). https://doi.org/10.1001/jamaneurol.2013.2152