Timeline of Stroke

Subjects: Others
Contributor: HandWiki

This is a timeline of stroke, describing especially major discoveries, developments and organizations concerning the disease.

stroke

1. Big Picture

1.1. Ancient Times

Greek physician Hippocrates first recognizes stroke more than 2,400 years ago, calling the condition *apoplexia*. Hippocrates doesn't clarify that the condition actually happens in the brain,[1] instead resolving into a "stagnation of the blood, whereby all the motion and action of the spirits is taken away", and that the motion is stopped by sharp humours, or a *plethora* (an excess of red blood cells or bodily humours). Galen (129 AD) accepts and develops the theory of Hippocrates, believing that apoplexy is caused by anything interfering with the flow of the *vital spirit* to the brain. The galenic theory persists for centuries.[2]

1.2. Early Modern Times

United Kingdom physician William Harvey (1578–1657) publishes his theory on the circulation of the blood. Others, like Wepfer (1620–1695), still believe that apoplexy is caused by an obstruction in the path to the brain, suggesting that the brain did not receive enough "animal spirits". G.G.J. Robinson theorizes that there is a "plethora of fulness of blood", therefore bleeding is acceptable since it lessens the pressure on the "animal organs". Overall, the definition introduced by Hippocrates is still in use.[2]

1.3. 1700s

Although remnants of old dogma persist, the foundations have been laid for apoplexy to shed some ancient traditions based on symptomatic presentation and to evolve into a vascular disease based on clinico–pathological and patho–physiological correlates. Bonet publishes *Sepulchretum sive Anatomica Practica*, which becomes a prominent resource for physicians during most of the 18th century.[3]

1.4. 1800s

The earliest known stroke treatments start to happen, when surgeons begin performing surgery on the carotid arteries. Surgeons begin operating to reduce cholesterol buildup and remove blockages that could then lead to a stroke.[1] Reports of successful closures of injuries to the carotid arteries are documented.[4]

1.5. 1900s

Early in the 20th century, most of the treatments for stroke patients are limited to rehabilitation after an acute stroke, and most patients are usually left with permanent and severe deficits.[4] In the 1950s new techniques and therapies are developed to explore and modify the internal processes of cerebrovascular disease.[2] In the 1960s carotid endarterectomy is greatly improved but is used mostly for stroke prevention and there is still no effective treatment after an acute stroke. In the 1970s aspirin is found to be very effective in stroke prevention. In the 1980s cigarette smoking is found to be a definite risk factor for stroke, and smoking cessation programs become very important. In the 1990s tissue plasminogen activator starts to be used for treatment of embolic or thrombotic stroke.[4]

1.6. 2000s

Today, rapid diagnosis is crucial for immediate treatment.[4] Stroke remains the second most common cause of death worldwide, accounting for 6.7 million deaths in 2012.[5] From 1990 to 2010, the age-standardised incidence of stroke significantly decreased by 12% in high-income countries, and increased by 12% in low-income and middle-income countries. In the same period, mortality rates showed a significant decrease in all countries.[6]

2. Full Timeline

Year/period	Type of event	Event	Location
460 BC–370 BC	Development	Hippocrates first recognizes stroke and calls the condition *apoplexia*, which is a Greek term that stands for “struck down by violence.”[1][7]	
1620–1695	Discovery	*Switzerland* pathologist Johann Jakob Wepfer discovers that something disrupts the blood supply in the brains of peopled who died from apoplexy. In some of these cases, there was massive bleeding into the brain. In others, the arteries were blocked.[1][7]	
1679	Book	*Switzerland* physician Théophile Bonet publishes his *Sepulchretum sive Anatomica Practica*, a work that contains 3,000 autopsy cases, included 70 cases of apoplexy, being the most extensive collection of its time.[3]	Geneva, *Switzerland*
1820	Development	English physician John Cooke writes: The term *Apoplexia* was employed by the Greeks, and is still used, to denote a disease in which the patient falls to the ground, often suddenly, and lies without sense or voluntary motion. Persons, instantaneously thus affected, as if struck by lightning.[3]	
1927	Development	Portuguese neurologist Egas Moniz successfully performs cerebral arteriograms for the study of cerebral tumors. For this work, Moniz receives the Nobel Prize in 1949.[4]	Portugal
1928	Development	Apoplexy is divided into categories based on the cause of the blood vessel problem. This leads to the terms stroke or "cerebral vascular accident (CVA)."[7]	
1950	Organization	The National Institute of Neurological Disorders and Stroke (NINDS) is founded.[8]	Bethesda, Maryland, *United States*
1954	Development	CAROTID endarterectomy is introduced as a procedure for the prevention of ischemic stroke distal to carotid-artery stenosis.[9]	
1972	Development	Xingnao Kaiqiao needling method is developed by Xue-min Shi for the treatment of stroke, especially ischemic stroke.[10]	*China*
1973	Development	Melodic intonation therapy is developed as a technique in order to help stroke patients regain speaking skills.[11]	Boston Veterans Affairs Hospital, Boston
1974	Development	The Glasgow Coma Scale is developed to be applied by emergency medical services to stroke or head injured patients.[12]	University of Glasgow, Scotland
1975	Development	Fugl-Meyer Assessment is developed and later becomes the most established stroke motor measure. It is recommended for use in stroke rehabilitative trials.[13][14]	
1976	Discovery	Canadian Henry Barnett discovers that aspirin can prevent strokes in people at high risk, and can prevent recurrences in people who have had strokes.[15]	*Canada*
1980-1985	Development	The National Institutes of Health Stroke Scale (NIHSS) is developed as a research tool to allow consistent reporting of neurological deficits in acute-stroke studies, particularly the early trials of thrombolysis and putative neuroprotectants.[16]	
1989	Organization	The International Stroke Society is established.[17]	
1990	Development	Stroke Impairment Assessment Set (SIAS), is developed as a comprehensive instrument to assess stroke impairment.[18]	
1990-1999	Development	The Los Angeles Prehospital Stroke Screen (LAPSS) is developed as a method for identifying potential stroke victims in a pre-hospital setting.[19]	
1994	Organization	The National Stroke Research Institute (Australia) is founded.[20]	Heidelberg, Victoria (Australia)

1994	Development	Magnetic resonance imaging is introduced for stroke diagnosis.[21]	
1994	Organization	UCLA Stroke Center is founded.[22]	*Los Angeles* , *California*
1996	Policy	The Food and Drug Administration (FDA) first approves use of tissue plasminogen activator for treatment of stroke.[4]	*United States*
1996	Organization	The Congressional Heart and Stroke Coalition is founded as a bipartisan group of senators and representatives in order to raise awareness about the prevalence and severity of cardiovascular disease and the importance of research, prevention and treatment.[23]	*United States*
1997	Development	The Cincinnati Prehospital Stroke Scale is developed as a system used to diagnose a potential stroke in a pre-hospital setting.[24]	Cincinnati, *United States*
1998	Development	The Face Arm Speech Test (FAST) method is developed to help detect and enhance responsiveness to stroke victim needs.[25]	*United Kingdom*
1999	Development	*tPA* drug, which can erase the effects of a stroke if administered within a few hours of the onset of symptoms, is approved for use.[15]	*Canada*
2001	Development	MERCI Retriever is designed as a medical device to treat ischemic stroke.[26]	University of California, Los Angeles
2001	Organization	The Canadian Stroke Network is founded.[27]	
2001	Organization	A stroke unit is established for the first time in China, in the Department of Neurology of Beijing Tiantan Hospital.	Beijing
2002	Report	Stroke is found to be the sixth largest cause of disability at a worldwide level.[28]	
2004	Organization	The World Stroke Federation is established.[17]	
2005	Development	First use of embryonic stem cells in stroke research is performed.[29]	
2006	Organization	The World Stroke Organization is established through the merger of the International Stroke Society and the World Stroke Federation.[17]	Geneva, *Switzerland*
2008	Development	The Kurashiki Prehospital Stroke Scale is developed for identifying thrombolytic candidates in acute ischemic stroke.[30]	
2012	Development	Helsinki model of stroke unit is established as a best logistic structure to use thrombolytic therapy in acute ischemic stroke. DTN [door to needle time] is reduced to below 20 minutes	
2014/2015	Discovery	Mechanical trombectomy widely introduced as a best treatment for large artery strokes	
2016	Discovery	Immediate aspirin after mini-stroke is found to substantially reduce risk of major stroke.[31]	Oxford University

References

1. "History of Stroke". http://www.healthline.com/health/stroke/history-of-stroke#1. Retrieved 2 August 2016.
2. "From apoplexy to stroke". http://ageing.oxfordjournals.org/content/26/5/331.full.pdf. Retrieved 4 August 2016.
3. Whitaker, Harry (2007-10-27). Brain, Mind and Medicine:: Essays in Eighteenth-Century Neuroscience. p. 237. ISBN 9780387709673. https://books.google.com/?id=PP3VZXS7D9IC&pg=PA237&lpg=PA237&dq=%22cooke%22+%221820%22+%22apoplexia%22#v=onepage&q=%22cooke%22%20
4. "Stroke: Historical Review and Innovative Treatments". http://nhsjs.com/2014/stroke-historical-review-and-innovative-treatments/. Retrieved 5 August 2016.
5. "The top 10 causes of death". http://who.int/mediacentre/factsheets/fs310/en/. Retrieved 5 July 2016.
6. "Global and regional burden of stroke during 1990-2010: findings from the Global Burden of Disease Study 2010". Lancet 383 (9913): 245–54. 2014. doi:10.1016/S0140-6736(13)61953-4. PMID 24449944.

http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=4181600

7. "History of Stroke". http://www.hopkinsmedicine.org/healthlibrary/conditions/nervous_system_disorders/history_of_stroke_85,P00223/. Retrieved 3 August 2016.
8. "NINDS". http://www.ninds.nih.gov/. Retrieved 4 July 2016.
9. North American Symptomatic Carotid Endarterectomy Trial Collaborators (August 1991). "Beneficial Effect of Carotid Endarterectomy in Symptomatic Patients with High-Grade Carotid Stenosis". The New England Journal of Medicine 325 (7): 445–453. doi:10.1056/NEJM199108153250701. PMID 1852179. https://dx.doi.org/10.1056%2FNEJM199108153250701
10. Yang, Z. X.; Xie, J. H.; Liu, Y. P.; Miao, G. X.; Wang, Y. H.; Wu, S. M.; Li, Y (Apr 2015). "Systematic review of long-term Xingnao Kaiqiao needling effcacy in ischemic stroke treatment". Neural Regen Res 10 (4): 583–8. doi:10.4103/1673-5374.155431. PMID 26170818. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=4424750
11. "Music Therapy Helps Some Regain Speech After Stroke". http://www.healthcentral.com/alzheimers/c/62/27130/therapy-stroke/. Retrieved 2 July 2016.
12. Schwab, Stefan; Hanley, Daniel (2014-06-05). Critical Care of the Stroke Patient. p. 66. ISBN 9780521762564. https://books.google.com/?id=nzaNAwAAQBAJ&pg=PA66&lpg=PA66&dq=%22stroke%22+%22developed+in+1974%22#v=onepage&q=%22stroke%22%20%22de
13. Stephen J. Page, Peter Levine, Erinn Hade (2012). "Psychometric Properties and Administration of the Wrist/Hand Subscales of the Fugl-Meyer Assessment in Minimally-Impaired Upper Extremity Hemiparesis in Stroke". Arch Phys Med Rehabil 93 (12): 2373–6.e5. doi:10.1016/j.apmr.2012.06.017. PMID 22759831. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=3494780
14. "Fugl-Meyer Assessment of Sensorimotor Recovery After Stroke (FMA)". http://www.strokengine.ca/assess/fma/. Retrieved 2 August 2016.
15. "How Canadian scientists are changing the future". http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.8723693/k.DD3/Solving_stroke_one_discovery_at_a_time.htm. Retrieved 4 August 2016.
16. Jennifer K Harrison, Katherine S McArthur, and Terence J Quinn (2013). "Assessment scales in stroke: clinimetric and clinical considerations". Clin Interv Aging 8: 201–11. doi:10.2147/CIA.S32405. PMID 23440256. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=3578502
17. "About WSO". http://www.worldstrokecampaign.org/about-the-world-stroke-campaign/about-wso.html. Retrieved 3 August 2016.
18. Liu M1, Chino N, Tuji T, Masakado Y, Hase K, Kimura A. (2002). "Psychometric properties of the Stroke Impairment Assessment Set (SIAS)". Neurorehabil Neural Repair 16 (4): 339–51. doi:10.1177/0888439002239279. PMID 12462765. https://dx.doi.org/10.1177%2F0888439002239279
19. Torbey, Michael; Selim, Magdy (2007-05-21). The Stroke Book. p. 6. ISBN 9780521671606. https://books.google.com/?id=-JkHnCZapLUC&pg=PA6&lpg=PA6&dq=%22Los+Angeles+Prehospital+Stroke+Screen+%28LAPSS%29%22+%22developed+in%22#v=
20. "National Stroke Research Institute". http://www.eurohyp1.eu/the-consortium/consortium/national-stroke-research-institute-australia/. Retrieved 4 August 2016.
21. Lisa R. Leffert, Caitlin R. Clancy, Brian T. Bateman, MSc, Allison S. Bryant, Elena V. Kuklina (2015). "Hypertensive Disorders and Pregnancy-Related Stroke". Obstet Gynecol 125 (1): 124–31. doi:10.1097/AOG.0000000000000590. PMID 25560114. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=4445352
22. "UCLA Stroke Researcher Honored by American Stroke Association". http://www.newswise.com/articles/ucla-stroke-researcher-honored-by-american-stroke-association. Retrieved 4 August 2016.
23. "Congressional Heart and Stroke Coalition". http://www.heart.org/HEARTORG/Advocate/Congressional-Heart-and-Stroke-Coalition_UCM_452967_Article.jsp#.V6OMKPmGMhk. Retrieved 4 August 2016.
24. "Cincinnati Prehospital Stroke Scale". http://www.thenecc.org/images/2015NECCPPTSozener.pdf. Retrieved 3 July 2016.

25. Joseph Harbison, Omar Hossain, Damian Jenkinson, John Davis, Stephen J. Louw, Gary A. Ford (2002). "Diagnostic Accuracy of Stroke Referrals From Primary Care, Emergency Room Physicians, and Ambulance Staff Using the Face Arm Speech Test". Stroke 34: 71–76. doi:10.1161/01.STR.0000044170.46643.5E. http://stroke.ahajournals.org/content/34/1/71.full.
26. "MERCI Story". http://www.radnet.ucla.edu/radweb/sections/endovascular/news/MERCI_Story.jsp. Retrieved 3 August 2016.
27. Daniel S. Chow, Jason S. Hauptman, Tony T. Wong, Nestor R. Gonzalez, Neil A. Martin, Angella A. Lignelli, Michael W. Itagaki (2012). "Changes in stroke research productivity: A global perspective". Surg Neurol Int 3: 27. doi:10.4103/2152-7806.92941. PMID 22439118. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=3307235
28. "Different strokes". http://www.thestar.com.my/lifestyle/health/2010/07/04/different-strokes/. Retrieved 3 August 2016.
29. "Stroke: how could stem cells help?". http://www.eurostemcell.org/factsheet/stroke-how-could-stem-cells-help. Retrieved 3 August 2016.
30. Jang J, Chung SP, Park I, You JS, Lee HS, Park JW, Chung TN, Chung HS, Lee HS (2014). "The Usefulness of the Kurashiki Prehospital Stroke Scale in Identifying Thrombolytic Candidates in Acute Ischemic Stroke". Yonsei Med. J. 55 (2): 410–6. doi:10.3349/ymj.2014.55.2.410. PMID 24532511. http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pmcentrez&artid=3936632
31. "Immediate aspirin after mini-stroke substantially reduces risk of major stroke". https://www.sciencedaily.com/releases/2016/05/160518220612.htm. Retrieved 2 August 2016.