

STORIES OF STROKE

# STORIES OF STROKE

## KEY INDIVIDUALS AND THE EVOLUTION OF IDEAS

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## WHY THIS BOOK NEEDED TO BE WRITTEN

### **Bo Norrving, Professor of Neurology, Lund University, Sweden, Former Chair World Stroke Organization**

*Stroke is one of the leading causes of illness and disability worldwide. Despite its impact, stroke has for long been in the “shadow” of other diseases, much because there were no treatments available at all. Conceptions that it would never be possible to treat acute stroke because brain cells die within 5–10 minutes were common. Stroke happened by bad luck, out of the blue, and could not be prevented. Stroke patients had the lowest priority in emergency medicine.*

*All this changed a few decades ago, and by now stroke is one of the best examples of a disease where rapid recognition and treatment is key and dramatically changes the course of the disease. Stroke can be prevented, treated, and managed more effectively than almost any other disease. The history of stroke is a story of hard-won achievements, with chapters that are endlessly fascinating. It tells the story of visionary pioneers who developed new concepts and paved the way for the current public recognition of stroke. The history includes drama, passion, failures, and success.*

*The present book tells the full story of stroke for the first time, with contributions from many of those who were firsthand eyewitnesses in this long process. For me it is a privilege to contribute to this book, and I am looking forward to reading the chapters of the other authors. The book will surely be a standard reference in the history of medicine.*

### **Jean-Claude Baron, Emeritus Professor of Stroke Medicine and consultant neurologist at Cambridge, UK; presently Consultant Institut National de la Santé et de la Recherche Médicale (INSERM), Paris, France**

*Knowing how present-day knowledge on diseases – particularly on stroke given the long-lasting nihilism – was acquired is essential to understanding the underlying mechanisms and in turn to manage each patient according to a personalized approach.*

### **Professor Norbert Nighoghossian, Head of stroke department, University Claude Bernard, Lyon, France**

*I am passionate about the history of medicine and that is the reason for my participation in this book.*

**Seemant Chattervedi, Stewart J. Greenebaum Endowed Professor of Stroke Neurology, University of Maryland School of Medicine**

*I wished to contribute to the book for the following reasons: In order to move any scientific field forward, you need to understand which ideas have been tested and failed and which ideas have stood the test of time. I feel this book provides those with an interest in neurology and stroke a road map to the past and future for stroke prevention and treatment.*

**Jonathan Coutinho, Neurologist, Amsterdam University Medical Centers**

*When I was finishing up my PhD thesis on cerebral venous thrombosis in 2014, I reviewed the history of this condition because I wanted to understand which physicians had contributed the most to unraveling this rare disease. In this process, I stumbled upon a quote by Dr. Stansfield, who, in 1942, was one of the first who dared treating a patient with cerebral venous thrombosis – a condition that is often accompanied by intracerebral hemorrhages – with heparin. In light of our current evidence-based medicine, his case report may almost seem trivial, but without pioneers such as Dr. Stansfield, we would not have reached the level of understanding of this condition that we are currently at. Thus, when Dr. Caplan offered me the opportunity to contribute to his book and thereby highlight the importance of physicians like Dr. Stansfield, it did not take me long to decide.*

**Carlos Kase, Emeritus Professor and Chair of Neurology, Boston University Medical School; Consultant Neurologist, Emory University**

*To me, writing about the history of a disease is a way of recognizing and honoring those who, before us, contributed their knowledge to our current understanding of the condition.*

**Christopher Ogilvy, Professor of Neurosurgery, Harvard Medical School**

*While medical advances are being developed at logarithmic speed, it is critical to document and record the history and development of each subspecialty in the medical field. This is particularly true in the field of stroke diagnosis and management where the tools to diagnose and treat intracranial vascular problems have had many recent rapid advances. These advances would not have been possible without the careful and painstaking lines of investigation carried out by physicians and scientists to learn the pathophysiology of intracranial and extracranial vascular disease. Honest and complete documentation of the history of our knowledge of this disease is crucial for further movement forward.*

**Roberto C. Heros, Senior VP and Chief Medical Administrative Officer, Jackson Health System; Professor of Neurosurgery, University of Miami**

*I was delighted and very honored to be asked by Dr. Caplan to contribute to this book. Knowing well Dr. Caplan, his contributions to stroke, and his love of history, I have no doubt that this book will be a resounding success and will become a classic to be cherished by all with an interest in cerebrovascular diseases.*

**Michael DeGeorgia, Professor of Neurology, Case Western Reserve University School of Medicine**

*To make sense of how or why something happened, we need to retrace the factors that came together earlier. Using embryology as a metaphor: ontogeny recapitulates phylogeny. I was drawn to writing a chapter because I wanted to understand the evolution of neurocritical care. Only through studying history can we grasp how the past creates the present and informs the future.*

**Alastair Buchan, Neurologist and Professor of Stroke Research, University of Oxford**

*I wanted to contribute to the history book because my first experience of academic stroke care was as an elective student coming from Oxford, visiting Harvard, and working on the neurology ward at the Beth Israel, in the spring of 1980. I witnessed the next four decades that have seen brain and vessel imaging underpin a complete revolution in both prevention and interventional stroke care, one that now saves lives, reduces risk, and restores many of our patients to a full neurological recovery. We could not have imagined the way brain can be saved and deficits reversed in 1980.*

*I wanted to contribute to recording the key events over the last half century and give attribution to clinician scientists, by bringing a European flavor to a North American account of this transformation. In doing so I sought to recognize my many mentors and role models across many continents. I am mindful that neuroprotection remains an unmet need, so I look forward to contributing to a future second volume of this history, once that goal is achieved, hopefully before the decade is out.*

**Conrado Estol, Director, Breyna, Heart and Brain Medicine; Director, Stroke Unit, Guemes Clinic, Buenos Aires, Argentina**

*During the early years of my neurology residency in the 1980s at the Presbyterian Hospital in Pittsburgh, I was impressed that most neurologists seemed to be somewhat limited in the evaluation of patients with cerebrovascular disease. The exception was Oscar Reinmuth, chairman of the department, and also the editor of the Stroke journal. My residency projects were based on stroke studies published by authors such as Lou Caplan and Mike Pessin. When I learned that they worked together in Boston,*

*I applied for a stroke fellowship with them and was offered the position. Working with them and, above all, learning from them made me feel that I was being a part, albeit small, of history in the making. They stimulated and inspired me with a different view of the stroke patient and also with anecdotal evidence they had obtained directly from C. Miller Fisher during their own training at the Mass General Hospital. Following in their footsteps I was fortunate to be part of the team that treated one of the first patients in the world ever to receive tPA. I was also privileged in being able to attend the weekly brain-cutting sessions with Tessa Hedley-Whyte, E. P. Richardson, and Miller Fisher himself. During those years of intense learning – in which I was continually inspired by being given the right questions to ask – I reviewed and published the history of carotid artery surgery and the evolution, during the twentieth century, of the use of anticoagulants in cerebrovascular disease. As years go by, I now fully realize and appreciate even more the unique opportunity I had of sharing with these giants a small part in the history of stroke. It is a very special honor to contribute to a book edited by Dr. Louis Caplan on the history of stroke.*

**Adel Alhazzani, Professor of Neurology, College of Medicine, King Saud University**

*I have witnessed transformation of the treatment of stroke over the last two decades to become a preventable and treatable condition. I wanted to be part of telling the story of the evolution of knowledge about stroke and its treatment.*

**Gabrielle deVeber, Professor Emeritus, University of Toronto, Senior Scientist, Child Health Evaluative Sciences, Hospital for Sick Children Research Institute**

*I remember hearing in my adult neurology training that “you learn neurology stroke by stroke.” The acute clinical nature of stroke, the precise localization of function with neuroanatomy, and the plasticity of the recovering brain fascinated me. In my career transition into child neurology I was stunned to see several children with stroke in my first year of practice. I saw that stroke in newborns and young children looked similar on brain imaging, but the mechanisms, manifestations, and trajectory of recovery were entirely different. Thus, treatments for stroke from adult studies could not be simply migrated to children. Over my career, childhood stroke emerged as its own subspecialty for the first time. Reaching back through the histories of adult stroke and pediatric cerebral palsy, and seeing the gradual converging of these two specialties over the past two centuries, I realized we are still part of an actively unfolding and dynamic story. I wanted this story to be told.*

**Patrícia Canhão, Assistant Professor, Faculty of Medicine University of Lisbon, Portugal**

*The history of cerebral venous thrombosis privileges us with very rich clinical reports, provides interesting considerations about etiology, puts forward modern therapeutic proposals, and excellently describes the progress in knowledge about the prognosis. It is*

*a story told in different voices, by the actors of the different clinical scenarios in which CVT occurs. It is a success story that demonstrates how collaboration between researchers from multiple centers makes it possible to advance knowledge. Knowing part of this story is to understand more fully this disease of the venous side of the brain. This is the reason for my contributing a chapter to this book.*

**Victor Oliveira, Neurologist, Faculty of Medicine, University of Lisbon, Portugal**

*The history of cerebrovascular diseases in the last hundred years is made up of a sequence of achievements that completely overturned previous concepts. Advance in the understanding of its clinical manifestations, some of them subtle, and its pathophysiology, epidemiology, and treatments constitutes extraordinary progress with direct implications for a large number of patients around the world. Some doctors have left their names associated with milestones in that progression. Their works, personalities, and careers should be remembered not only as a tribute but also for the understanding of the history of medicine.*

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## PREFACE

Every illness is not a set of pathologies but a personal story.

—Anne Fadiman, *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures* (New York: Farrar, Straus and Giroux, 1997)

There's always a story. It's all stories, really. The sun coming up every day is a story. Everything's got a story in it. Change the story, change the world.

—Terry Pratchett, *A Hat Full of Sky* (New York: Harper Collins, 2000)

Behind every person, every idea, every event, every advance there is a story. In this book, we collect many of the stories that together tell some of the history of a medical condition: stroke.

Stroke is one of the most important and most feared conditions known to man. World history has been changed by stroke. Many important leaders in science, medicine, the arts, and politics have had their productivity cut prematurely short by stroke. Some of their stories are included in this book. Even more important is the threat that stroke poses to every individual. What could be more devastating than to lose the ability to move a limb, stand, walk, see, feel, think clearly, remember, read, write, speak, or understand language? Loss of function is often quick and totally unanticipated. Impairments may be permanent. Most individuals fear stroke more than any other disease, with the possible exception of cancer. Everyone would like to exit this life with their capabilities and mind intact, despite the inevitable aging of their bodies.

Clearly, the history of stroke needs to be written. Stroke is a very complex disorder. Multiple conditions and risk factors and developments in medical knowledge and technology relate intimately to the history of stroke. A detailed complete analysis of the evolution of knowledge about all these stroke-related factors would fill many large volumes. These volumes would constitute a reference valuable to scholars but would make rather tedious reading. Instead, we have striven herein to offer an eclectic, easily read, single volume that shares selected stories. We elected to focus on key individuals who were innovators, movers, and shakers who advanced the field further along. We also emphasized ideas – how they began, and how they then evolved up to the present day. We also chose to emphasize the twentieth century, especially

the second half of the twentieth up to the end of the first quarter of the twenty-first century. This period saw the most dramatic and extensive changes in knowledge about stroke and in caring for stroke patients. The story of those advances has not been told. The senior editor was active during this period and, as a witness, could help deliver a firsthand account of progress and how it developed.

Many texts provide accounts of medical advances beginning with the ancients and Hippocrates. We include eclectically some of the early history that relates to the brain and to vascular disease, but it is not the emphasis of this volume.

We have asked individuals from different countries to contribute. They were chosen because of their knowledge about various aspects of stroke development. We have edited their contributions, sometimes extensively, to make them conform to the style and goals of the volume. We have also limited references to those that were essential and important. We kept the volume sparsely illustrated with figures in order to reduce the cost of publication and printing and to contain the cost for those who wish to purchase the book. Pictures and photographs of the individuals discussed are now readily available through the internet.

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