William P. Howlett, PhD **NEUROLOGY IN AFRICA**

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“Ex Africa semper aliquid novi [Out of Africa always something new],” wrote the Roman historian Pliny the elder. Neurology in Africa is no different, with the recent emergence of new diseases ranging from HIV to konzo. Historically, neurology in Africa has been included under the heading tropical neurology or neurology in the tropics and is well-reviewed by Poser and Poser.¹ Some of the earliest descriptions of the more common neurologic disorders (ND), including stroke, migraine, paralysis, and seizures, come from ancient Egypt and Greece. These accounts include diseases like lathyrism, which occurs in temperate as well as tropical climates, and was described by Herodotus (61 BC). More recent descriptions of tropical neurologic diseases, mostly infections, coincide with the exploration and colonization of the tropics. In 1803, Winterbottom described sleeping sickness (trypanosomiasis) in Sierra Leone; its cause was later elucidated by Bruce² in 1895. An example of an imported disease is the neuropathy of leprosy described in Norway by Danielssen and Boeck in 1848, and its cause elucidated there by Armauer Hansen³ in 1873. The subspecialty of tropical neurology came into being in the 1960s. It was led in Africa by neurologists Henri Collomb and Michael Dumas in Senegal; Neville Proctor (neuropathologist) and J.E. Cosnett in South Africa; George Monekosso and Benjamin Osuntokun⁴ in Nigeria; John Spillane⁵ in Africa and Wales; and Redda Tekle-Haimanot in Ethiopia. Several books on tropical neurology have been written.^{5–7}

Neurology in sub-Saharan Africa. The burden of ND in sub-Saharan Africa (SSA) is large, accounting for over 5% of deaths and approximately 14% of all disability. They account for over 20% of adult hospital medical admissions; the majority of patients either die in hospital or are discharged with disability. The pattern in SSA is also different, with CNS infections much more prevalent than in the West, while diseases like multiple sclerosis are either very rare or not reported. Infections are most often HIV-related and together with stroke, paraparesis, neuropathies, coma, and seizures are the leading neurologic causes of hospital admission. However, with the rising burden of

noncommunicable and neurodegenerative diseases in SSA, this pattern seems set to alter.

Medical education in Africa. Africa is a vast continent with a population of over 1 billion, of whom 800 million live in SSA, the majority under 18 years of age. There are now 168 medical schools in SSA, most of which were started within the last 15 years. Tanzania has a population of over 45 million and a total of 7 medical schools, all but one of which were started within the last 16 years. The training of medical students, health care workers (HCW), and doctors is now a priority in Africa.

Teaching. Neurology is traditionally considered a difficult subject and this is even more so in SSA, because of the lack of neurologists or general physicians adequately trained in neurology. The number of neurologists in Africa is estimated to be 0.03 per 100,000 people. Tanzania currently has just 5 practicing neurologists. Although neurology as a subject is covered in standard, tropical, and specialized textbooks, these often lack specificity, are more disease- rather than patient-directed, or are not readily available. There is therefore a need for an appropriate textbook to help students and doctors acquire the knowledge and skills necessary to diagnose and care for neurology patients. *Neurology in Africa* (figure) is the title of a new textbook that aims to fill that need. It is written specifically for Africa and the Internet and is available online at www.uib.no/cih/en/resources/neurology-in-africa free to download either as a whole book or as individual chapters.

The aim of *Neurology in Africa* is to provide a practical textbook that is available and accessible in Africa. It was written over a 5-year period while the author was working in the Department of Internal Medicine at Kilimanjaro Christian Medical Centre (KCMC) in Moshi in Northern Tanzania and during annual 1-month stays at the Centre for International Health, University of Bergen (UiB), Norway. The illustrations, design, layout, and publication were done in collaboration with UiB. Chapter reviews were carried out by neurology colleagues and the whole book review and editing was done by a visiting neurologist (Daniel Gibbs) to KCMC. The book is based on the experience of the author with almost 20 years of working and

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Figure Cover of textbook *Neurology in Africa* (reproduced with permission)

teaching as a general physician and neurologist in East Africa. It is written in 2 sections: the first on clinical skills, which includes history taking, examination, and localization, with the students as the main target group; and the second on ND, with both students and doctors as its main target group. The order and content of the chapters reflect the disease pattern, their relative importance, and resource limitations in SSA.

Care in neurology. The high mortality and morbidity as well as the chronic nature of many neurologic diseases make patient care issues especially challenging in SSA. The most common symptoms encountered include pain, confusion, spasticity and immobility, loss of communication, anxiety, and depression. Lack of pain relief has been identified as the most common problem encountered in patients with advanced neurologic disease. In SSA, most of the patient's general and supportive care is delivered by family and friends. Care in neurology ideally involves a team approach including family members, friends, nurses, doctors, physiotherapists, and occupational therapists. This inevitably includes elements of palliative care, in particular when there is no curative treatment available. *Neurology in Africa* presents an overview of care and symptom control.

Neurology and the Internet. One of the main challenges in SSA today is ensuring that students and health care workers are well-trained and continue to learn from their practical experience. I am reminded daily by students here that the Internet is the new medium for information. While information has become more readily available via the Internet, it is wise to remember that clinical skills first need to be taught, then supervised, and later practiced. Providing a comprehensive textbook in neurology is just one step in that direction. Making essential academic literature freely accessible and available to all is an achievable goal for Africa. This is being made possible by the increased availability of open-access publications and Web sites such as www.who.int/hinari/en/, www.healthnet.org/essential-links, www.pubmed.com, www.cdc.gov, and www.unaids.org. Examples of online open-resource libraries include Bergen Open Research Archive, Connecting-Africa (Leiden University, the Netherlands), and Uganda Scholarly Digital Library.

The way forward. The gap between needs and resources is well-documented in SSA. The main needs in neurology are the education of students and HCW and the training of neurologists. Africa is closing that gap with the enormous increase in medical education. International organizations like the World Federation of Neurology, European Federation of Neurological Societies, WHO, and national neurologic associations are all committed to the same goals, in particular to teaching and training. The aim in writing *Neurology in Africa* is to assist in teaching and patient care in SSA. Translating it into French and producing a teaching video on neurologic examination skills are the next goals.

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