

**Editors' Note:** In response to "Stroke in sub-Saharan Africa: An urgent call for prevention," Dr. Adoukonou et al. submit a thought-provoking description of the challenges and resource limitations facing neurologists and stroke patients in Benin, as well as recent actions taken to improve the situation. Drs. Marousi et al., in reference to "Simultaneous PML-IRIS after discontinuation of natalizumab in a patient with MS," highlight the need for clinical awareness of both progressive multifocal leukoencephalopathy-immune reconstitution inflammatory syndrome and multiple sclerosis rebound in the post-natalizumab period.

*Megan Alcauskas, MD, and Robert C. Griggs, MD*

#### STROKE IN SUB-SAHARAN AFRICA: AN URGENT CALL FOR PREVENTION

**Thierry Armel Adoukonou, Martin Houenassi, Parakou; Dismand Houinato, Cotonou, Benin:**

We read Dr. Chin's<sup>1</sup> article describing the current situation in Mulago Hospital in Uganda. We have also sounded the alarm on this problem.<sup>2</sup> Recent data show a stroke prevalence of 4.6/1,000 in our country, Benin.<sup>3</sup> With an estimated population of 9 million, there are 2 neurologic departments. In the capital, Cotonou, there are 14 beds. The second is in Parakou, with 6 beds, and 2 are allocated to strokes. There are no MRI facilities and 3 CT scanners. None of these units can conduct vascular sequences.

In Parakou, there is 1 neurologist, 1 neurosurgeon, 1 department of rehabilitation, 1 laboratory, 1 intensive care specialist, and 2 cardiologists with modern facilities for heart and vessel exploration. We are currently setting up multidisciplinary care pathways for stroke management that seem to improve the functional prognosis of some patients. Now 93% of patients with stroke can have at least 1 CT and 1 EKG. In the general population, the awareness of early stroke symptoms is still very poor, which delays hospitalization.<sup>4</sup> Only 17.2% of the 122 patients admitted during the last year were admitted within 3 hours of onset. The current situation is due to the cost of facilities (CT scan is \$100 USD, an EKG \$10 USD, echocardiography \$36 USD, and neck vessel ultrasound exploration \$36 USD).

Politicians in most sub-Saharan countries need to invest in stroke management by building national insurance systems to reduce the cost.<sup>5</sup> We need partnerships

and the help of local authorities to increase patient access to stroke care that we are now setting up in Parakou and surrounding areas. The Stroke Kit—about \$100 USD—includes the cost of all tests and drugs for the initial phase. Furthermore, several drugs for secondary prevention are available here at a reasonable cost. We are also pursuing public campaigns related to stroke awareness.

This approach will significantly improve acute stroke management. We stress our earlier recommendations,<sup>2</sup> which Dr. Chin also cited, to significantly reduce the epidemic of strokes in sub-Saharan Africa.

**Author response: Jerome H. Chin, Berkeley, CA:** I appreciate the information shared by Adoukonou et al. regarding acute stroke management in Benin. Their challenges and resource limitations mirror those in Uganda. In May 2012, there was a resolution adopted by the United Nations member states at the World Health Assembly to reduce premature mortality from noncommunicable diseases by 25% by 2025. This will hopefully catalyze domestic government investments in stroke prevention and treatment. Hypertension causes 51% of deaths from stroke,<sup>6</sup> yet awareness and treatment of hypertension in sub-Saharan Africa are extremely low.<sup>7</sup> Given that multidrug therapy for the prevention of cardiovascular events is highly cost-effective in sub-Saharan Africa,<sup>8</sup> governments and international partners need to raise the priority of preventive programs that include screening for and treatment of hypertension.

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### SIMULTANEOUS PML-IRIS AFTER DISCONTINUATION OF NATALIZUMAB IN A PATIENT WITH MS

**Stella Marousi, Maria Travarou, Clementine E. Karageorgiou, Athens, Greece:** Gheuens et al.<sup>1</sup> presented a case of progressive multifocal leukoencephalopathy-immune reconstitution inflammatory syndrome (PML-IRIS) 2 months after natalizumab discontinuation. Their patient had an active history of ethanol abuse, which can be considered a 'functional' equivalent to immunosuppression. Interestingly, prior use of immunosuppressants has been included in the recently developed risk-stratification algorithm for PML.<sup>2</sup> This case underscores the need for clinicians to adopt a wider concept of immunosuppression, rather than restricting it solely to the use of pharmacologic agents. We and others published 3 cases of definitive severe multiple sclerosis (MS) rebound about 2 months following natalizumab discontinuation,<sup>3-5</sup> and further implied that younger patients are more prone to such relapses.<sup>5</sup> However, Gheuens et al. concluded that new enhancing MRI lesions after natalizumab withdrawal may also be the manifestation of PML-IRIS.<sup>1</sup> As experience from patients discontinuing natalizumab and switching to other therapies mounts, a high degree of clinical vigilance for both incidences (i.e., MS rebound and PML) should follow the immediate

post-natalizumab period. However, until official guidelines are issued, it is unclear exactly how patients should be treated in the interval between natalizumab and the next therapeutic choice.

**Author response: Sarah Gheuens, Igor J. Koralnik, Boston:** We thank Marousi et al. for their comments on our article. We agree that PML may also occur in the setting of occult or minimal immunosuppression, as seen in 5 cases at our center and in 33 previously reported patients.<sup>6</sup> As they mention, clinicians should be aware that either PML-IRIS or a relapse of MS may occur after discontinuation of natalizumab.

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*Author disclosures are available upon request (journal@neurology.org).*

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