



Editors' Note: Dr. Sethi discusses the disproportionate allocation of resources to neurologic diseases' treatment compared to primary prevention. Focusing on the latter would do greater good for the greatest number of people. Dr. Silberberg agrees and mentions another study that supports this view. Dr. Beran criticizes Braley et al., pointing out that in their sleep-disordered breathing in multiple sclerosis (MS) study, they did not include an analysis of the impact of periodic limb movement (PLM) on sleep. Braley et al. reviewed their data and found no correlation between PLM and increased daytime sleepiness in patients with MS.

Chafic Karam, MD, and Robert C. Griggs, MD

BRAIN DISORDERS WHERE RESOURCES ARE SCARCE: THE UNFINISHED AGENDA

Nitin K. Sethi, New York: I read Dr. Silberberg's¹ recent commentary with interest. Neurologic and psychiatric disorders can overwhelm medical services in the underdeveloped and developed world where the burden of infectious diseases is high. Diseases such as malaria, tuberculosis, and cholera carry high morbidity and mortality rates and consume health care resources. Neurologic conditions such as stroke and epilepsy are pushed lower on the government's health priority lists. We recently reported on another disturbing trend.²

In India, there is a disproportionate allocation of resources to stroke treatment with costly interventions such as recombinant tissue plasminogen activator and mechanical embolectomy by establishing stroke centers in large state and central government hospitals rather than stroke prevention via stroke risk factor modification in the masses. Only those who live in the big cities benefit from such intervention, whereas stroke risk factor modification has the potential to benefit a majority of those residing in small towns and villages with limited access to health care resources.

Neurocysticercosis remains the most common cause of new-onset epilepsy among the young in India. It can be eradicated only via education and improved sanitation practices, not costly anticonvulsants that only a privileged few in these countries can afford. The burden of brain disorders in these countries can only be reduced if the limited available resources are used efficiently with emphasis on primary and secondary prevention of stroke,

epilepsy, and infectious neurologic diseases. Policymakers in these countries should remember the goal of medicine should always be to do the greatest good for the greatest number of people.

Author Response: Donald H. Silberberg, Philadelphia: I enjoyed reading Dr. Sethi's remarks, and fully agree that prevention is far preferable to treatment or rehabilitation whenever possible. His points are made even more relevant by the recent study of adult deaths in rural southern Tanzania. Narh-Bana et al.³ found that epilepsy and stroke ranked among the top 5 causes of death, responsible for 21% of adult mortality. It is probable that a similar situation exists throughout Sub-Saharan Africa—that the vast majority of noncommunicable disease deaths are from neurologic disorders.

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SLEEP-DISORDERED BREATHING IN MULTIPLE SCLEROSIS

Roy G. Beran, Chatswood, Australia: Braley et al.¹ investigated sleep-disordered breathing in multiple sclerosis (MS) using overnight polysomnography. MS produced increased apnea-hypopnea index (AHI) and central apnea index (CAI). Periodic limb movement in sleep (PLMS) with associated periodic limb movement causing arousal (PLMA) was not addressed by the authors.

A pilot study showed that patients with MS with excessive sleepiness—also interpreted as fatigue—had significantly elevated PLMA compared to controls with and without MS.² Despite small numbers, 6 in each arm, this study demonstrated statistically significant differences between MS with and without excessive sleepiness. It is disappointing that the authors ignored this finding. The data should still be available and PLMS with PLMA should be analyzed

to see if the previous findings² could be corroborated or refuted.

Braley et al.¹ confirmed increase in both AHI and CAI in MS, particularly brainstem lesions, but it is important to assess PLMS with PLMA because this is treated.

Author Response: Tiffany J. Braley, Benjamin M. Segal, Ronald D. Chervin, Ann Arbor, MI:

To answer Dr. Beran's question, we re-examined the data for the patients with MS in our study.¹ No significant correlations were noted between Epworth Sleepiness Scale (ESS) score and the Periodic Limb Movement Index (PLMI), or between ESS score and the Periodic Limb Movement Arousal Index (PLMAI), using Pearson correlation tests ($p = 0.01$ and -0.08 ; $p = 0.95$ and 0.60 , respectively). There were also no significant differences in the PLMI or PLMAI between sleepy (ESS greater than or equal to 10) and nonsleepy

(ESS less than 10) patients with MS using Wilcoxon rank sum tests ($p = 0.23$ and 0.81 , respectively).

These analyses are consistent with existing data among patients without MS, which do not suggest that PLM, either with or without arousals, increase daytime sleepiness. Published data from our center³ and another⁴ show that PLM with arousals actually predict less daytime sleepiness, to a small but statistically significant extent.

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