Does Spasticity Itself Raise the Cost of Stroke Care 4-Fold?

To the Editor:

The report from Lundstrom et al1 headlines a relationship between spasticity and higher direct costs of stroke care over the first year after onset. The authors seem to be putting the cart’s contents, 1 of which is spasticity, before the horse of sensorimotor impairment. The authors used a modified Ashworth Score of \( \geq 1 \) in any 1 of 7 arm and leg joints as the measure of spasticity. The modified Ashworth Score is a 6-point ordinal scale of resistance to passive movement across a joint, which can arise from reflexive clasp-knife resistance and from changes in connective tissues of the joint associated with severity of paresis, nonuse, and contracture. It is often used in studies, but its validity and reliability may be less than necessary to reflect a physiologically meaningful measure.\(^2\) Clinicians involved in the care of patients with chronic stroke would not consider a modified Ashworth Score in any 1 joint of \( \geq 3 \) to suggest a clinically important problem. No evidence exists that the modified Ashworth Score cutoff used for this study’s retrospective, database-driven findings could be detrimental after stroke. So what underlies the relationship described?

The authors found a significantly higher National Institutes of Health Stroke Scale score in the group considered to have any degree of spasticity. It would seem, then, that they would want to examine for a correlation between cost of care and level of impairment based on the National Institutes of Health Stroke Scale. They did show that poorer modified Rankin Scale scores (which intermix aspects of impairment and disability) were significantly related to higher costs. If indeed, greater resistance to passive movement across a single joint has a relationship to cost, the primary relationship is probably to the degree of sensorimotor impairment that induces greater disability and, in turn, higher in-hospital costs from complications of greater impairment such as immobility.

The discussion from the authors seems to repudiate the primacy of their correlation. If “our study does not provide evidence that spasticity as such is responsible for the (4-fold) increase of costs” and “spasticity reflects a more severe motor disorder,” how can the authors suggest that their data offer, at best, a baseline for “the cost-effectiveness of interventions, including botulinum toxin” . . . ? This particular intervention is likely to drive up costs if injected into patients with a modified Ashworth Score \( < 3 \) but will not alter sensorimotor impairments. From a healthcare priority point of view, their findings suggest the need for more outpatient physiotherapy, which was provided to only 4\% of their subjects. A rehabilitation intervention to maintain range of motion, prevent painful contractures and dystonic postures, and to improve motor control and skills might reduce disability, costs, and burden of care for those who are most impaired by paresis.

Bruce H. Dobkin, MD
Department of Neurology
Geffen/University of California Los Angeles School of Medicine
Los Angeles, Calif

1. Lundstrom E, Smits A, Borg J, Terent A. Four-fold increase in direct costs of stroke survivors with spasticity compared with stroke survivors without spasticity: the first year after the event. Stroke. 2010;41:319–324.
Does Spasticity Itself Raise the Cost of Stroke Care 4-Fold?
Bruce H. Dobkin

Stroke. 2010;41:e470; originally published online June 3, 2010;
doi: 10.1161/STROKEAHA.110.581561
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2010 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://stroke.ahajournals.org/content/41/7/e470

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org//subscriptions/