Letters to the Editor

Stroke welcomes Letters to the Editor and will publish them, if suitable, as space permits. They should not exceed 750 words (including references) and may be subject to editing or abridgment. Please submit letters in duplicate, typed double-spaced. Include a fax number for the corresponding author and a completed copyright transfer agreement form (available online at http://stroke.ahajournals.org and http://submit-stroke.ahajournals.org).

Wrist Splint for Upper Motor Neuron Paralysis

To the Editor:

There are a number of concerns with the study published by Stroke written by Lannin et al.1

The concerns are: (1) the randomization; (2) the title; (3) the sample of stroke participants; (4) the volar splint; and (5) the splinting groups with the wrist and fingers in a “neutral” and in an “extended position.”

Randomization was based on the diagnosis and time from onset, not the degree of spasticity. Therefore, it is obvious that change in flexor tendon extensibility and possible effectiveness on onset, not the degree of spasticity. Therefore, it is obvious that an “extended position.”

There were no rationale for the selected positions of “neutral wrist” and “45° extended wrist.” Both positions are inappropriate for splint effectiveness for the stated level of spasticity. To show changes in the extensibility of fingers and wrist flexors and to prevent contractures, it is vital to position the hand just beyond the point of stretch reflex. Every group of spastic muscles (in this case wrist flexors) has its own range of motion that it could be moved before a hypertonic reaction “clasp-knife” phenomenon occurs.2 3 This is the point where a hypertonic stretch response begins to be felt from afferents when the joint is moved passively. The “wrist neutral” is thus invalid. The “45° extended wrist” is also invalid as it is beyond the point at which the stretch reflex melts away from the homonymous inhibitory Golgi tendon organ. After this point or wrist angle, there is no resistance to passive stretch. Such randomly selected wrist positions are inappropriate for determining splinting effectiveness. Those participants in whom the hypertonic response began to be felt early, which are those with moderate to severe spasticity, would benefit from a smaller wrist splint angle, whereas those with milder spasticity would benefit from a greater wrist angle. The purpose in preventive splinting is to push the point of stretch reflex as far back into wrist extension as possible to encourage tone neutralization and develop emerging volitional control.

In conclusion, the authors should be commended for their attempt to investigate the effectiveness of wrist splints in preventing contractures; however, the results are questionable because of the flaws in randomization, splint construction, splint application angle, and arbitrary selection of the angle of the wrist.

Disclosures

None.

Surya Shah, OTD, PhD, Med, OTR, FAOTA
Occupational Therapy and Neurology
Leeds Metropolitan University
Leeds, UK
University of Tennessee Health Science Center
Memphis, TN

Wrist Splint for Upper Motor Neuron Paralysis
Surya Shah

*Stroke*. 2007;38:e74; originally published online June 28, 2007;
doi: 10.1161/STRKEAHA.107.488031

Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2007 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/38/8/e74

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/