Splinting Poststroke: the Jury Is Still Out

To the Editor:

In the article abstract by Lannin et al., the authors claim “the practice of routine splinting soon after stroke should be discontinued.” Their presented data does not show this.

The stated aim was to determine the effect of splinting “on contracture in the wrist and long finger flexor muscles” without defining ‘contracture’. Participant inclusion criteria required an absence of active wrist extension as the single physiological consideration for inclusion. The average wrist extensibility across groups was 58.4° (SD 14.6°) with patients exhibiting minimal spasticity. Baseline measures suggest the patient group did not appear to have, nor be at risk of, developing excessive wrist or finger contracture. It is unlikely that in this acute stage of stroke rehabilitation against a background of minimal muscle activity with fair range of passive wrist extensibility that contracture would develop.

The study design lacks consideration of the effects of imbalanced muscle overactivity (rather than spasticity) on development of contracture, muscle length, and hand function. A high proportion of participants reported rest pain both before and after intervention, with clinical differences evident between controls and splinted groups (not statistically significant). The wide standard deviation band suggests marked heterogeneity within the sample with subsequent potential for type II error. However, the authors do not discuss this finding. Furthermore, there appeared to be no attempt to classify patients at risk of contracture due to muscle overactivity or pain which may have revealed a benefit for some patient types. That the sample size precluded subgroup analysis of readily predictable confounds suggests the overall study is underpowered.

The study design evaluates the effect of splinting in isolation from active upper-limb retraining and stretching. The authors state that “stretches of the wrist or long finger flexor muscle were not performed during the 6-week study period” in addition to which a maximum of 10 minutes of daily extension activity were permitted. In practice, splinting in acute neurological rehabilitation aims to maintain passive range of movement, gained through more active forms of therapy such as dynamic stretching and functional use. The study design prevented these forms of active therapy; therefore, it would be unlikely that any style of splint (resting or end-range) would be effective in preventing loss of passive range of motion in the absence of active therapy.

The authors have grossly generalized their findings in the abstract by concluding “the practice of routine splinting soon after stroke should be discontinued.” Splinting is undertaken for many reasons including joint protection, to maintain alignment, functional splinting or splinting for spasticity management in conjunction with active therapies. The authors state “the routine practice of hand splinting to prevent muscle contracture during acute rehabilitation after stroke should be discontinued.” It is usual practice in scientific reporting to limit statements to the sample studied, that is, early post-stroke adults without active wrist or finger movement and minimal spasticity. Thus, their conclusion could be restated as splinting does not prevent contracture in patients at minimal risk of contracture. As it stands, the overgeneralized statement that appears in the abstract has the potential to misinform readers.

Disclosures

None.

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