FROM THE EDITORS’ DESK

Rethinking the Continuum of Stroke Rehabilitation

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Abstract

Suffering a stroke can be a devastating and life-changing event. Although there is a large evidence base for stroke rehabilitation in the acute and subacute stages, it has been long accepted that patients with stroke reach a plateau in their rehabilitation recovery relatively early. We have recently published the results of a systematic review designed to identify all randomized controlled trials (RCTs) where a rehabilitation intervention was initiated more than 6 months after the onset of the stroke. Of the trials identified, 339 RCTs met inclusion criteria, demonstrating an evidence base for stroke rehabilitation in the chronic phase as well. This seems at odds with the assumption that further recovery is unlikely and the subsequent lack of resources devoted to chronic stroke rehabilitation and management.

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Stroke is one of the most common causes of adult disability, and its prevalence is likely to increase with an aging population, despite advances in prevention and acute interventions. For many individuals and their caregivers, a stroke is a devastating and life-changing event with impact over the long term that is well appreciated but not as well understood.1 It is estimated that 33% to 42% of stroke survivors 3 to 6 months poststroke require assistance for daily living activities; of these individuals, 36% continue to be disabled 5 years later.1-3 It is well known that caregivers of stroke survivors also suffer from high rates of psychological and physical problems2,4,5 over the short term; however, the long-term impact on stroke caregivers is not as clear.1

There is an impressive evidence base that interdisciplinary stroke rehabilitation delivered in the acute and subacute phases improves the outcomes of stroke survivors. Recovery for the patients with stroke is influenced by a number of factors but typically reaches a plateau relatively early after the onset of their stroke, often by 3 months poststroke onset and most certainly by 6 months.1 Page et al1 have argued that one of the contributing factors to the plateau seen in poststroke recovery is neuromuscular adaptation to a standardized outpatient regimen of exercise. When neuromuscular adaptation takes place, rather than discontinuing the therapy, a variety of alternative or novel approaches to therapy could be used to further facilitate recovery and overcome the adaptive state. Randomized controlled trials (RCTs) that demonstrate that interventions applied in the chronic phase of stroke improve outcomes would provide evidence to support this concept. This, in turn, would help to justify an approach to rehabilitation of patients with stroke that extended beyond the traditional 3- to 6-month time period.

We have recently published the results of a systematic review that attempted to look at what evidence existed for rehabilitation therapies applied in the chronic phase of stroke.1 In this review, we identified all RCTs in which a rehabilitation intervention was initiated >6 months after the onset of stroke.1 In total, 339 RCTs met inclusion criteria. A review of the evidence found that many of these interventions resulted in significant improvements. For example, in the constraint-induced movement therapy review and meta-analysis, 7 studies demonstrated improvements in all of the motor upper extremity outcomes assessed; only 2 of the included 16 studies did not report a positive outcome on any of the outcome measures.3 Furthermore, meta-analyses on lower limb resistance training,9 cardiovascular conditioning,10 and functional electrical stimulation11 demonstrated improvements in walking distance.
using the 6-minute walk test. Several other positive outcomes were demonstrated by these meta-analyses, including significant increases in comfortable gait speed and FIM gains. Therefore, beyond mere statistical significance, there is evidence to support clinical improvement for these individuals in the chronic phase.

Of the 339 RCTs in which the intervention studied was initiated >6 months poststroke, 256 were related to motor recovery (eg, gait and mobility, upper extremity, hemiplegic shoulder). The relative abundance of studies assessing motor interventions among chronic stroke survivors likely reflects the fact that investigators often prefer to conduct studies once natural recovery and standardized rehabilitation is complete. Inadvertently, these RCTs looking at later interventions provide us with supportive evidence for the role of rehabilitation in the chronic phase of stroke, an area that up until now has largely been neglected. Unfortunately, only 19 RCTs examined psychosocial issues (eg, depression, community reintegration). The dearth of RCTs on psychosocial outcomes is in contrast with the acknowledged importance of psychosocial issues faced by chronic stroke survivors.

Based on the abundance of literature available, we would argue that there is a need to reexamine how rehabilitation is provided in the chronic phase of stroke. It is well known that there will be some patients who respond to specific interventions with subsequent improvements well past the subacute phase. Research suggests that rehabilitation for many patients with stroke may reflect more of a lifelong process of learning and points to the need to, as Korner-Bitensky states, “reposition the management of stroke to recognize the need for sophisticated chronic disease management.”

Keywords

Controlled clinical trials, randomized; Rehabilitation; Stroke

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