

GUEST EDITORIAL

Stroke recovery and rehabilitation research

In my 29-year career as a physical therapist, I have always believed stroke rehabilitation was a good thing and it should be provided to most everyone. However, evidence-based practice requires us to know what works and who benefits and to know if stroke rehabilitation is cost-effective.

Currently, there is tremendous variability in the structure and process of rehabilitation services in Department of Veterans Affairs (VA) facilities. Despite demonstrated efficacy, veterans have limited access to organized rehabilitation unit care. For example, only 50 percent of veterans with acute stroke were cared for in VA hospitals with organized rehabilitation units [1] and 27 percent are cared for in VA hospitals with neither a geriatric unit nor rehabilitation unit. Additionally, rehabilitation services in the VA are currently being reorganized and reduced. In the past 5 years, the number of rehabilitation units has decreased from 72 to 37 (–49 percent). All of these changes are occurring in the presence of converging evidence that well-organized multidisciplinary rehabilitation improves outcomes for individuals with stroke [2–5]. Recently completed VA Health Services Research and Development (HSR&D) and Rehabilitation Research and Development (RR&D) studies have demonstrated that processes and structures of postacute rehabilitation stroke care are associated with better patient outcomes and that better structure is associated with improved processes [6–8]. In addition, emerging evidence supports the efficacy of new therapeutic interventions [9–11].

However, we know little about the characteristics (timing, intensity, or duration) that are most beneficial, which patients benefit the most, or whether patients and their families value the ultimate outcomes.

There is an urgent need to make additional strides in stroke rehabilitation research. Stroke is one of the major causes of long-term disability among adults, and its prevalence will continue to rise as the population ages. The Veterans Health Administration (VHA) estimates that each year over 15,000 veterans are hospitalized for stroke. Forty percent of these stroke survivors are left



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with moderate functional impairments and 15 to 30 percent severe disability. Even among those with “mild stroke,” significant residual deficits may limit mobility, increase risk for falls, and limit community reintegration and quality of life. All stroke survivors and their families are hopeful that research will one day help them.

In March 2002, the National Institute of Neurological Diseases and Stroke released a report to develop a 10-year strategic plan for research. The report identified many priorities for stroke research, and it specifically targeted the need for expanded research in rehabilitation and recovery. The priorities identified for stroke rehabilitation and recovery research include (1) investigation of the neurobiology of recovery, (2) promotion of evidence-based investigations of innovative therapies compatible

with principles of neural plasticity and learning, and (3) evaluation of the organization of rehabilitation services.

The resources needed to advance stroke rehabilitation and recovery research for these priorities are many. First, we need collaboration among basic and clinical researchers to design and implement trials of recovery and rehabilitation. Second, we need clinically relevant animal models of stroke and stroke recovery that include aging, comorbidities, hormonal balance, and preexisting brain dysfunction. Third, we need to develop a consortium of investigators and facilities to develop cooperative trials and to ensure access to stroke survivors for the trials. Fourth, we need to develop a stroke outcomes database, which includes standardized assessment of functional outcomes. Finally, we need multidisciplinary teams of investigators who will do stroke research. Specifically, neurologists, physical medicine and rehabilitation physicians, geriatricians, therapists, nurses, and methodologists (epidemiologists, statisticians, psychometricians, economists, and health services researchers) need to collaborate to develop a program for stroke outcomes research.

The VA is a leader in providing some of the resources needed for stroke rehabilitation research. Last year, in the spirit of collaboration and the building of multidisciplinary research teams, RR&D and HSR&D developed a collaborative request for proposals for a Center in Excellence in Rehabilitation Outcomes Research. The first Center of Excellence funded is at the North Florida/South Georgia VHA.

The mission of the Rehabilitation Outcomes Research Center (RORC) for Veterans with Central Nervous System (CNS) Damage is to enhance access, quality, and efficiency of rehabilitation services through interdisciplinary research and dissemination activities. The RORC will develop a national database of outcomes for individuals with stroke, develop and test outcomes related to newly emerging rehabilitation therapies based on principles of neuroplasticity and innovative technologies, and provide scientific evidence that will promote informed clinical policy in rehabilitation. The Center will ultimately optimize care and functional recovery for veterans with CNS damage.

The RORC will evaluate rehabilitation services and emerging therapies and technologies. To meet

these objectives, the RORC will (1) develop an Integrated Stroke Outcomes Database (ISOD) to evaluate structure, process and outcomes of rehabilitation; (2) use recent statistical and technological advances in measurement development to construct and evaluate existing and new outcome measures; and (3) bring together interdisciplinary teams of rehabilitation researchers, health service researchers, and social scientists to examine the feasibility of translating innovative therapies and technologies into clinical practice and to guide development of future effectiveness studies.

Development of the RORC is a first step for the VA to develop innovative research support for stroke outcomes research. However, many more opportunities exist to expand the evidence for stroke rehabilitation. The VA should develop collaborations for research and research training with other agencies, e.g., Agency for Healthcare Research and Quality, National Center for Medical Rehabilitation Research, and National Institute for Neurological Diseases and Stroke. These collaborations could stimulate and guide stroke rehabilitation and recovery research for the future.

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