adoption of prudent diets, medications to lower high blood pressure and other pharmacological interventions, are clearly influencing the frequency of this devastating illness.

The 20th Century witnessed an awesome shift in how the medical profession confronted stroke: From a silent bedside vigil with no meaningful interventions other than prayer and solace for the grieving family, to its current armamentarium of drugs and purposeful nursing and rehabilitation measures leading to an overall reduction of the disease; and a significant improvement in outcome when the disease does arise.

How frequent was stroke (sometimes called cerebrovascular disease) in the first half of the 20th Century? Consider these grim facts: Most great political leaders of those past decades who had not succumbed to assassination, dementia or the perils of war, died of stroke. This sad list includes, amongst many others, V.I. Lenin, Woodrow Wilson, Warren Harding, Franklin D. Roosevelt, Winston Churchill and Richard Nixon.

– Stanley M. Aronson, MD

Stanley M. Aronson, MD is dean of medicine emeritus, Brown University.

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Correspondence
e-mail: SMAMD@cox.net

Rehabilitation Medicine: Serving People With Disabilities

Jon Mukand, MD, PhD

Almost 13 % of non-institutionalized Americans between the ages of 21 and 64 (about 22.3 million people) reported a disability in the 2007 **American Community Survey (ACS)**. This means that in Rhode Island there are about 87,000 people with disabilities, as defined by three questions. First, are there any permanent conditions such as severe vision impairment or a limitation in at least one basic activity such as walking? Second, due to a physical, mental, or emotional condition, is there a mental disability (e.g. learning, memory, concentration) or a disability with self-care? Third, is there a disability with vocational or community activities such as with shopping?[1]

There are many causes of disabilities. Less than 15% are congenital, because most occur later in life.[2] More than six million Americans are survivors of a stroke,[3] more than 400,000 live with multiple sclerosis,[4] and more than 325,000 suffer hip fractures annually.[5] My perspective on disability is that of a medical director and rehabilitation medicine consultant at the **Southern New England Rehabilitation Center (SNERC)**, a joint venture of Rhode Island Hospital and St. Joseph Health Services of RI. The center treats people with strokes, spinal cord and brain injuries, multiple trauma, hip fractures, amputations, and neurologic conditions such as MS, Parkinson's, and poly-neuropathies.

Disability is a struggle; I admire my patients, their families, and their medical caregivers as they contend with the challenges. One of the most common impairments is with mobility. In the US about a million people use wheelchairs.[2] The widespread use of mobility devices, and the economic implications, are evident in television advertisements that promise freedom of movement — with full coverage by insurance companies. Unfortunately, on occasion the profit motive overcomes the clinical needs of patients, as described in the article on wheelchair mobility by therapists Stacey Johnson and Colleen Fitzsimmons. Disabilities often lead to physical problems that require careful assessment in the context of the psychosocial situation and architectural barriers in the home and community. It is essential to perform a detailed assessment of musculoskeletal and neurologic function, skin integrity, posture, trunk control, sitting tolerance, mobility, and activities of daily living. Assessing previous equipment helps determine what special features are medically indicated, or not. Finally, the therapists order the equipment in coordination with physicians to ensure that there are no problems with insurance coverage. (People with disabilities often deal with financial issues; health care problems are the most common reason for declaring bankruptcy in America.) Only by evaluating these diverse factors, as these skilled therapists have done for many of my patients at SNERC, can one provide the optimal mobility equipment for people with disabilities.

As an occasional consultant and referring physician for Sargent Rehabilitation Center, I have observed and treated children as they received rehabilitation for traumatic brain injuries. One of my most tragic patients is Tori Andreozzi, a world class karate champion who was severely injured when a drunk driver crashed into her. Tori continues her odyssey of recovery, in spite of severe neurologic deficits. In 2006, almost 13,500 people were killed in alcohol-related traffic fatalities, accounting for one-third of all U.S. car collisions. Almost 1,800 children who were fourteen and younger were killed by motor vehicles, and 17% of these deaths were related to alcohol.[6] Tori was featured in Rhode Island newspapers and her mother, Cathy, is an advocate for the prevention of alcohol-related injuries. Her therapists at Sargent Rehabilitation Center continue their treatments. Marilyn Serra and Colleen McCarthy describe the center's impressive model for pediatric rehabilitation.

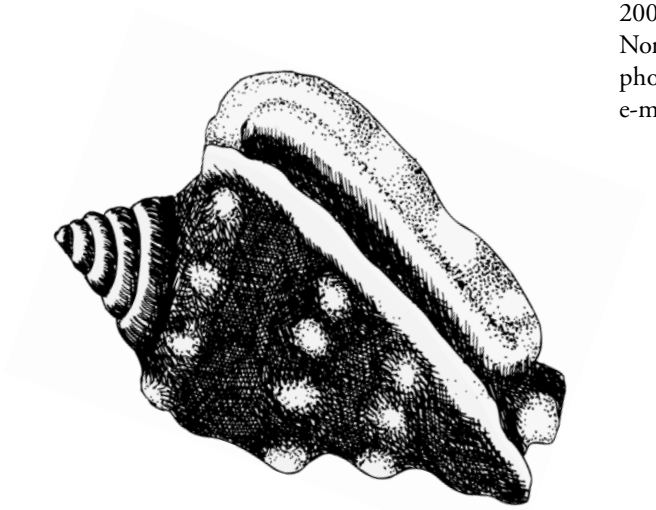
One of the consequences, as well as a major cause, of disabilities is falls. In the United States, there is one death and 183 emergency department visits for fall-related injuries among older adults every

hour.[7] Among elderly people, 60% of fatal falls occur at home, 30% in public places, and 10% in health care institutions.[8] One third of older adults fall each year, and 20-30% of this group suffer moderate to severe bruises, fractures, and head injuries.[9] Fractures commonly occur in the spine, forearm, leg, ankle, pelvis, upper arm, and hand. Falls can often be prevented, by understanding risk factors and implementing strategies to reduce their impact and incidence, as discussed in the article I co-authored with Patricia Wolfe and Christine Lourenco.

Hip fractures are common orthopedic injuries due to falls, with an annual incidence of 325,000 in the United States. The consequences are devastating for elderly patients: a one-year mortality rate of 18-33% and in-hospital mortality of 2.7%[5] Many of the patients at SNERC have disabilities related to hip fractures, and many have risk factors for osteoporosis. Vitamin D deficiency is a relatively common problem that increases the risk of abnormal calcium metabolism. (I generally prescribe a loading dose of 50,000 units of Vitamin D and then regular doses of calcium/Vitamin D, along with a recommendation to follow up with the primary care physician for a bone density test and medications as indicated.) Greg Sawyer and Craig Lareau, two orthopedic surgery residents at Brown University, discuss surgical approaches and rehabilitative issues for these complex patients. One of the most common complications in this population is **venous thromboembolic** (**VTE**) disease, and requires careful attention in the peri-operative phase.

Almost all people with disabilities are at high risk of VTEs early in their course and require prophylactic measures. This is especially true of patients with multiple traumatic injuries. During occasional rounds with the Trauma Surgery program at Rhode Island Hospital, I have seen that trauma surgery requires a deep understanding of anatomy, physiology, and pharmacology. If these severely damaged patients survive, the difficult process of rehabilitation starts in the Trauma ICU. Shea Gregg and his colleagues in the trauma program have authored an interdisciplinary article on the complex rehabilitation for these shattered patients.

Once patients with disabilities have received their medical and surgical care in the acute care hospital, they may require intensive inpatient rehabilitation at a center such as mine (SNERC). With Jeanne Stowe, the center's Director of Case Management, I co-authored an article on several clinical and medico-administrative issues. The admission criteria as well as the review process for inpatient rehabilitation have become more complicated, but we continue treating patients with disabilities due to a variety of neurologic and orthopedic conditions. At SNERC, we enjoy working with our medical/surgical colleagues on behalf of people with disabilities, who are featured in this special issue on rehabilitation.



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Jon Mukand, MD, PhD, is Medical Director, Southern New England Rehabilitation Center, and Clinical Assistant Professor, Rehabilitation Medicine, The Warren Alpert Medical School of Brown University, Boston University Medical School, and Tufts University Medical School.

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Jon Mukand. Speakers' Bureau: GlaxoSmithKline.

Correspondence

Jon Mukand, MD, PhD
Southern New England Rehabilitation Center
200 High Service Avenue
North Providence, RI 02904
phone: (401) 456-3939
e-mail: jmukand@saintjosephri.com