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Commentary on Effects of an Enjoyable Nurse-Led Intervention to Promote Movement in Post-Stroke Inpatients

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In the United States, approximately 795,000 new or recurrent cases of stroke occur annually (Roger et al., 2012). More than 7 million stroke survivors live with poststroke effects in the United States (National Stroke Association, 2012). Stroke survivors often suffer some neurological-associated disability, such as hemiplegia, aphasia, or swallowing deficits leading to functional loss. Approximately 50% of stroke survivors experience long-term disability such as partial paralysis, and 25% to 50% of stroke survivors require continuing assistance in performing activities of daily living (Gordon et al., 2004). Poststroke symptoms such as fatigue, depression, and sleep disturbances are also common and linked to increased morbidity and mortality (Bassetti & Aldrich, 2001; Glader, Stegmayr, & Asplund, 2002; Leppavuori, Pohjasvaara, Vataja, Kaste, & Erkinjuntti, 2002; Schmid et al., 2011; Williams, Ghose, & Swindle, 2004).

In the current article, Kim aims to explore effects of an enjoyable nurse led intervention that promotes movement of plegic limbs in hemiplegic noncognitively impaired stroke survivors. A nonsynchronized, nonequivalent control group pretest-posttest design was used. Twenty intervention group subjects participated in 30- to 40-min group sessions three times a week for 2 weeks. The intervention employed a competitive team approach using nonregulation football (soccer) or golf sets to be used with the affected limb. Functional status (motor, cognitive, and total), fatigue, sleep, and depression were measured as outcome variables. All outcomes except for cognitive function were significantly improved in the intervention group compared with the control group. The investigator's work has implications for early physical activity interventions to facilitate better rehabilitation care for stroke survivors; promote their long-term health; and prevent other poststroke complications.

Given the high prevalence of stroke, cost-effective care for stroke survivors is vital to public health. While the author's work is preliminary, it has the potential to improve clinical practice and may lead to reduced health care costs for stroke survivors. As Kim noted, this study has several limitations. First, the investigator did not measure variables that were directly related to physical activity such as motor impairment in the limbs. The Functional Independence Measurement (FIM) was used to assess functional status in this study and is considered a gold standard for assessing activities of daily living, but provides limited

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information about the degree of stroke survivors' motor impairment. Actual measurement of motor function, such as upper and lower-limb movement and/or mobility, would add greatly to the outcomes from this type of intervention as well as other important influences on the outcome measures of functional status, fatigue, sleep, and depression included in this study.

The author stated that there were no significant differences in the baseline demographics or clinical variables between experimental and control groups. For clinical variables, the author provided duration of stroke, site of hemiparesis, number of admissions, and number of surgeries. Other important clinical characteristics such as type of stroke (ischemic or hemorrhagic), region of stroke, severity of stroke (e.g., NIH stroke scale rating), severity of disability, or comorbidity that could have influenced the outcomes in this study were not reported. These potentially important clinical variables should be controlled to more fully investigate the effect of the intervention on outcomes in future studies. The rationale for the variable of the number of surgical procedures for participants in this study was unclear because patients with ischemic stroke are not normally subject to surgical procedures. Most importantly, the intensity, frequency, duration, and type of formal rehabilitation, such as physical and/or occupational therapy that participants received as "usual care" were not provided. In future research, adjustment for these important covariates should be addressed.

The period of the intervention, three times a week for 2 weeks, may have been too short to show improvement in motor function, such as upper- and lower-limb movement and/or mobility of stroke survivors—variables which were not measured in this study. As the author mentioned, study participants had no serious cognitive dysfunction to begin with and, in addition, the intervention period (three times a week for 2 weeks) was too short to show improvement in cognitive function. Furthermore, the time period for which the control group data were collected was unclear. Studies that have involved exercise training in stroke patients have demonstrated an improvement in peak oxygen and sensory-motor function (Macko et al., 2001; Potempa et al., 1995; Rimmer, Riley, Creviston, & Nicola, 2000). The intervention periods for these studies were at least 10 weeks to at most 6 months long. A future randomized, controlled trial that involves an enjoyable nurse-led intervention with a larger sample size over a 10- to 12-week (or even up to 6 month) period may demonstrate strengthened motor function and improved patient outcomes.

Nonetheless, this study is important because the authors developed an innovative nurse-led intervention stroke survivors can enjoy, in part because it involves group (team) work and competitive motivation. Rehabilitation for stroke survivors is usually provided by members of an interdisciplinary team including physicians, nurses, physical and/or occupational therapists, speech language pathologists, and social workers. The intervention described can be easily administered in the in-patient rehabilitation setting by nurses and may lead to an expanded scope of practice for rehabilitation nurses. The goals of rehabilitation in stroke survivors are to recover prestroke levels of activities of daily living to the greatest degree possible and to prevent a recurrent stroke or other poststroke complications (Gordon et al., 2004; Mol & Baker, 1991). A meta-analysis supported intensive physical activity as a means to reduce risk for stroke (Wendel-Vos et al., 2004). As Kim stated, functional status, fatigue, sleep, and depression in stroke survivors are closely related to each other. Fatigue is a predictor for functional status after stroke (Glader et al., 2002). Stroke survivors with fatigue

are more likely to be institutionalized (Glader et al., 2002). Fatigue and depression in stroke survivors have been linked to higher mortality (Glader et al., 2002; Williams et al., 2004). Functional loss or poststroke symptoms such as fatigue, depression, and sleep disturbance are obstacles to engagement in any type of rehabilitation therapy. This enjoyable nurse-led intervention combined with standard rehabilitation services may reduce these obstacles, maximize rehabilitation care outcomes, and prevent recurrent stroke.

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