AOTA Evidence Briefs
Multiple Sclerosis

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

MS #19

Intensive therapy may reduce length of stay for neurological patients

Slade, A., Tennant, A., & Chamberlain, M. A. (2002). A randomized controlled trial to determine the effect of intensity of therapy upon length of stay in a neurological rehabilitation setting. *Journal of Rehabilitation Medicine*, *34*, 260–266.

Level: IA1a

Randomized controlled trial, 20 or more participants per condition, high internal validity, high external validity.

Why research this topic?

Conducting randomized controlled trials in neurological rehabilitation settings is difficult because of variations in the **impairments** (see *Glossary*) that neurological diseases and disorders create, in the mix of skills among the health care professionals who treat the patients, and in the time scheduled for treatment. Also, ethical considerations preclude comparing therapy with no therapy, so researchers compare the effectiveness of different rehabilitation settings or of different intensities of therapy. A meta-analysis published in 1997 suggested that greater intensity of therapy after stroke produced more benefits.

What did the researchers do?

Slade, Tennant, and Chamberlain (2002), of the University of Leeds (UK), designed a study to test the hypothesis that more intensive occupational and physical therapy would reduce patients' length of stay in a neurological rehabilitation facility.

People eligible to participate in the study were all 161 who were admitted to a 19-bed neurological rehabilitation unit from 1995 through 1997. The unit served patients between 16 and 65 years of age. The researchers randomly assigned the 161 patients to the experimental group (n=80) or the **control group** (see *Glossary*; n=81). Before the intervention began, however, 20 patients declined to continue. The resulting sample was 141. The median age was 53 years (their average age was not reported), and the range of ages was 40 to 62 years. Gender was not specified. Nine of the 141 failed to complete rehabilitation, and 6 more dropped out before the end of the trial. The final sample consisted of 126. They represented a mix of patients who had experienced a stroke, patients with traumatic brain injury, and patients with other neurological disorders, including multiple sclerosis.

The researchers allocated 67% more therapy per week to the experimental group than to the control group. Both groups received various types of therapy: physical, perceptual and cognitive, washing and dressing, activities of daily living, group treatment, and joint treatment and splinting.

The outcome areas of interest were *extent of dependency* (as measured by the Modified Barthel Index) and *length of stay* (defined as the time from admission to discharge). Measures were taken on admission and at discharge. Also, health care professionals administered the Modified Barthel Index every two weeks.

What did the researchers find?

The experimental group received **significantly** (see *Glossary*) more therapy than the control group. In actual time,

however, this amounted to 1 1/4 hours a day, 5 days a week, compared with just less than 1 hour a day, 5 days a week, for the control group.

On extent of dependency, there was **no significant** (see *Glossary*) difference between the two groups at discharge.

With results adjusted solely for confounding factors (delays in discharge and missed treatments), length of stay for the experimental group was 5 days less than for the control group. This difference was not significant. However, with results also adjusted for the mix of impairments (represented by the type and the amount of therapy required), the difference in length of stay was 14 days, and it was significant.

What do the findings mean?

For therapists and other providers, the findings suggest that intensive therapy (in this study, 67% above the standard amount) reduces the length of stay in rehabilitation for patients with neurological impairments. The findings confirm the conclusions of the 1997 meta-analysis that these kinds of patients benefit from intensive therapy. These results indicate the importance of the role of advocacy by the occupational therapist to make sure that clients receive the appropriate intensity of therapy to achieve treatment goals.

What are the study's limitations?

The study has two limitations. First, it failed to "control" (experimentally adjust) for other possible confounding factors, such as illness during rehabilitation and equipment needs. These might have affected the outcomes. Second, it used the type and the amount of therapy as a surrogate for case mix, and it is unknown if clinical assessment identified these complex needs appropriately.

Glossary

control group—A group that received special attention similar to that which the treatment group received, but did not receive the treatment.

impairments—"Abnormalities of body structure and appearance and with organ or system function, resulting from any cause" (*International Classification of Impairments*, *Disabilities*, *and Handicaps*, 1980, p. 14).

nonsignificant (or no significance)—A statistical term that refers to study findings that are likely to be due to chance differences between the groups rather than to other factors (e.g., the treatment of interest). A nonsignificant result cannot be generalized outside the study. Like significance, a nonsignificant result does not indicate the clinical effect. Often studies will show nonsignificant results, yet the treatment group's mean will be better than the control group's. This is usually referred to as a trend in the right direction. Because significance is closely determined by sample size, nonsignificant results would often become significant if the sample size were increased.

significance (or significant)—A statistical term that refers to the probability that the results obtained in the study are not due to chance, but to some other factor (e.g., the treatment of interest). A significant result is likely to be able to be generalized to populations outside the study.

Significance should not be confused with *clinical effect*. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk may report that the participants in the treatment group were able to walk significantly longer distances than those in the control group. However, after reading the study one may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

This work is based on the evidence-based literature review completed by Vidyalakshmi Sundar, BS, and Marian Arbesman, PhD, OTR/L.

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.