

CAREGIVING

Falls Prevention In Dementia Populations

Following a trial program of recreation therapy, falls were reduced by 164 percent

A prescribed regimen of recreation therapy can dramatically reduce the incidence of falls and injuries in long term care patients with dementia, according to a recent study conducted at special dementia care units in Oxford, N.Y.; Boston; and Palo Alto, Calif.

The study, "Efficacy of Prescribed Therapeutic Recreation Protocols on Falls and Injuries in Nursing Home Residents with Dementia," set out to answer two basic questions: 1.) What times of day do most falls occur? and 2.) Will therapeutic recreation interventions reduce falls and injuries and, therefore, the cost of care for nursing facility patients with dementia?

The medical director at the Oxford, N.Y., facility, the primary site for the study, was especially interested in taking part in this project because the facility's dementia unit was averaging more than 50 falls per month. Other research sites involved in the study were Boston's Sherrill House, a skilled nursing facility (SNF) that includes a special care program for patients with Alzheimer's, and Veterans Affairs Palo Alto Healthcare System, Palo Alto, Calif., whose 108-bed intermediate care facility has a dementia unit and dementia respite program.

Critical Times

Over a two-month pretest period, researchers examined patterns in falls on the special care units at all three sites. It became clear that the afternoon change-of-shift time—2:30 p.m. to 4 p.m.—was the time in which interventions needed to occur. The next critical times were morn-

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ings and evenings. This information helped guide the establishment of the program times. Morning walking groups were planned for 6:30 a.m., exercise for function for mid afternoon, and relaxation for the evening. While this may not seem like a huge innovation, researchers found that most facilities tend to schedule patient activities for the convenience of the staff—including housekeepers—rather than at optimum times for patients.

This time data helped pinpoint the selection of patients for the program. Two falls in one month or a fall in two consecutive months during these proscribed time periods triggered eligibility for the program, provided that the patient:

- Had a mini-mental state exam (MMSE) score of 23 or less (the MMSE measures cognitive functioning);
- Had two or more falls in the past two months occurring between 7:00 a.m. and 9:00 p.m.;
- Did not have a healing fracture;
- Was not attending physical therapy;
- Could walk either independently, with one assist, or with an assistive device such as a cane or a walker;
- Had a signed consent by family member or legal guardian; and
- Had agreed to participate.

The Protocol

Patients in the study were randomly assigned to either Group 1 (falls prevention treatment program) or control Group 2 (nursing facility programs as usual). Group 1 participated in the falls prevention program for three months, while Group 2 participated in activities as usual for the first two months. After two months, all participants were put in the

falls prevention program. Falls and injuries were recorded as posttest data during the two-month intervention period for all subjects. A record was kept of resulting injuries and the medical costs of any injury for all participants. These data were collected from incident and quality improvement reports.

Data collected from chart reviews and incident reports included basic demographic information (age, gender, diagnosis, health history, current activity profile, and past leisure interests), MMSE score, depression diagnosis and score on the geriatric depression scale, routine and PRN (as needed) medications, and number of falls and resulting injuries.

Patients in Group 1 participated in three therapeutic recreation programs that were scheduled at the time of day when most falls occur and in the locations where the falls occur. The goal was to increase strength, endurance, and flexibility and provide needed stimulation under the supervision of a therapist. The programs included daily graded walking, exercise for function, and sensory air mat therapy. The basic protocol used in the research, funded by the American Therapeutic Recreation Association, was developed at Willard Psychiatric Center for the reduction of falls in frail older adults with long-term disabilities. It included:

- Graded walking at 6:30 each morning to address the need for lower extremity strength and overall endurance.
- A three-times-weekly exercise regimen to improve overall function, enhance balance, bolster upper-body strength, and increase overall flexibility. These mid-afternoon sessions were conducted with familiar music and movements while working on muscle groups and balance.
- Use of a sensory air flow mat, which is an air compressor with a 10' x 10' vinyl



exercise mat attached that fills with air. The mat provides sensory stimulation in the form of air flowing up through the seams of the mat and white noise. It is sometimes the only safe way to get frail, confused older adults to move, exercise, and relax. The sensory air flow mat provided practice in transferring, relaxing

tired muscles, and sensory integration. The mat also provided freedom of movement, balance training, and relaxation for restless individuals. These sessions were conducted in the evening at least twice weekly.

All research sites had a certified therapeutic recreational specialist (CTRS)

overseeing the project staff at the site. One staff member was required for both the morning walking and the exercise for function programs. This staff member could be a member of the activity department, nursing department, or therapy department. Airmat therapy required a trained CTRS and one other staff member to assist.

Research Results

The two-month pretest falls total was 92 falls at the Oxford site, where 11 subjects participated; 24 at the Boston site, where eight subjects participated; and 12 at the Palo Alto site, which included six subjects. All sites combined for a total of 128 falls among 25 subjects.

The mean age of participants was 83.3 (range 60-98), and the dementia diagnoses included 10 people with Alzheimer's-type dementia, five subjects with vascular dementia, five with Parkinson's dementia, and five with mixed or unknown types of memory loss. The MMSE scores on this group were very low; nine had a score of zero, and the group mean was 2.63. The average number of routine medications used daily was 5.79 per participant.

Examining other diagnoses, eight subjects had depression, seven had severe visual impairments, eight had neurological problems, five had hypertensive diagnoses, and only two had documented gait disorders in their medical charts.

Prior to this program, the study subjects averaged 1.89 activities weekly, some passive in nature such as listening to music or watching television. During the program the average went up to nearly 12 active programs per week for the treatment group.

After the two-month intervention period, posttest falls data were gathered from incident reports and chart reviews. Falls for the treatment group were reduced from a total of 74 to 28, while the control group had an increase from 46 to 56 falls. Dra-

For More Information

■ For a copy of the full study, contact the author at lbuetne@fgcu.edu.

matic and significant findings included improvements in strength: The treatment group's average strength went from lifting 2.7 lbs. to 4.5 lbs., while the control group lost strength, 2.7 lbs. to 2.6 lbs. Other significant findings were in distance walked by the morning walking group. Also, the treatment group increased its daily morning walking distance from 220 feet to 1,258 feet, while the control group lost walking length, going from 260 feet to 223 feet.

Costs Reduced As Well

For the control group, the cost of falls and injuries added up to \$79,535. Costs were determined based on research data on falls, which included staff time, supplies, and out-of-facility expenses incurred. Treatment group costs were \$30,031, which included staff time to run the programs. Therefore, the savings estimate, not considering the pain and suffering of

those who were falling, was \$49,504, enough, perhaps, to justify keeping a CTRS on staff.

Other interesting points included the fact that five participants from Sherrill House and Oxford Veterans Home had no falls during the intervention. All of them were women with Alzheimer's-type dementia. In addition, two out of the three individuals from the Palo Alto facility did not experience any further falls during the intervention. This intervention seemed to be particularly beneficial to women with Alzheimer's-type dementia. Two individuals who had multiple falls both passed away due to cerebral vascular accidents during the study. Perhaps if clinicians find individuals with many unexplained falls it may be due to a life-threatening medical condition, like reoccurring strokes.

Despite ongoing efforts at prevention, up to 50 percent of long term care patients fall each year, according to Tideiksaar

(1996). It is a serious, costly problem that affects all practicing disciplines in the nursing facility; an average hip replacement surgery, for example, carries a cost of approximately \$100,000.

The Centers for Medicare and Medicaid Services is examining the use of physician-ordered therapeutic recreation to prevent falls and injuries in patients with dementia. Many of these individuals are Medicare-eligible because of prior hospital stays, but may not be treated on a rehabilitation unit because of disturbing behaviors related to their cognitive disorders. ■

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