Effect of Nurse Visits on Outcomes in the Elderly

Dalby DM, Sellors JW, Fraser FD, Fraser C, van Ineveld C, Howard M. Effect of preventive home visits by a nurse on the outcomes of frail elderly people in the community: a randomized controlled trial. CMAJ 2000;162:497–500.

Study Overview

Objective. To determine if preventive home visits by nurses, when compared with usual care, improve health outcomes in frail elderly people living in the community.

Design. Blinded randomized controlled trial.

Setting and participants. Researchers sent a screening questionnaire to 415 potential subjects, age 70 years or older, of which 369 (88.9%) responded. Of these, 198 (53.7%) were eligible and 142 (38.5%) agreed to participate. Patients were considered eligible if they reported functional impairment, hospital admission, or bereavement in the previous 6 months. Participants were randomly assigned either to the visiting nurse (VN) group or to the usual care (UC) group. Primary care physicians were aware of which patients were in the VN group.

Intervention. The VN group received care designed to minimize the negative effects of age-related changes and risk factors and to promote positive functional consequences. The nurse reviewed medical records and performed comprehensive assessments of medication use; physical, cognitive, emotional, and social function; and environmental safety. Care plans were developed with physicians, family members, caregivers, and other health professionals. The visiting nurse served as case manager. Follow-up visits and telephone calls were scheduled as needed to promote health, monitor health status, and provide vaccinations and psychological support.

Main outcome measures. Primary outcomes were rates of deaths and institutional admissions over the 14-month study period. Secondary outcome was rate of health service utilization. Rates were determined through a medical chart audit by a research nurse who was blinded to group assignment.

Main results. 113 patients (VN 59, UC 54) completed the trial. Baseline characteristics were similar between groups except that more patients in the VN group had lost a loved one in the previous 6 months (39.75% versus 20.35%; $P = 0.02$). In the VN group, the nurse found that 95.9% of patients had unreported problems, including chest infections (24.7%), urinary tract infections (27.4%), gastroenteritis (27.4%), depression (15.1%), viral illnesses (15.10%), insomnia (6.8%), and hearing impairment (6.8%). During the study period, 7 (10%) of 70 subjects in the VN group (for whom outcome data were available) died, compared with 3 (4.3%) of 69 in the UC group ($P = 0.3$). The rate of influenza vaccine administration was markedly higher in VN patients (91% versus 53%; $P < 0.001$). Pneumonia vaccine was administered to 81.9% of VN patients and to no patients in the UC group. Health service utilization rates were similar in both groups; however, there was a trend toward more frequent visits to family physicians and longer hospital stays for those in the VN group.

Conclusion

This study did not show any effect of a VN program on the health of elderly people, with the exception of better vaccination rates.

Commentary

The use of visiting nurses for elderly patient care is increasing dramatically; however, the number of good randomized controlled trials demonstrating the benefits of visiting nurses is limited. The study by Dalby et al made good use of randomization, but the study has several weaknesses. The authors acknowledge that their recruitment fell short; because of the small sample size, the study lacks statistical power, which limits their results and may explain why there were no significant differences between groups in terms of mortality and admissions to health care facilities. The lack of efficacy of the intervention might be explained by the proportion of deaths and admissions that were not preventable; however, Dalby and colleagues did not provide data on causes of death in study subjects. In addition, the trial duration was only 14 months, which may have been too short to demonstrate differences. However, one would expect that with a mortality rate of 10% at 14 months, some differences would have been seen had these deaths been preventable. Positive outcomes of the intervention included the high vaccination rates for flu and pneumonia and the large number of chronic health problems discovered by the VN. Even if the detection of these problems did not affect primary outcomes, quality of life may have been improved. Unfortunately, the authors did not measure quality of life in either group.

Other studies have been conducted with numbers and characteristics of patients similar to those examined by Dalby

and colleagues. One study by Gagnon et al showed no differences between VN and UC groups [1]. In contrast, results from an Italian trial showed a reduction in the number of hospital and nursing home admissions, an improvement in physical functional status, and a reduction in the decline of cognitive function [2]. Both studies had 1-year follow-up periods. Research by Hall et al indicated that a higher number of VN patients were still living in the community at 2 years [3].

Applications for Clinical Practice

Dalby and colleagues' work points to a critical need for large randomized studies with long-term follow-up to determine the usefulness of VN programs in preventing deaths, hospitalizations, and morbidities in frail elderly patients. Because studies in this field have shown somewhat conflicting results, it seems reasonable to continue VN programs with an understanding of their limitations. Program benefits may be cost-effective, such as the positive effect on vaccination rates.

References

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3. Hall N, DeBeck P, Johnson D, Mackinnon K, Gutman G, Glick N. Randomized trial of a health promotion for frail elderly. Can J Aging 1992;11:72–91.