

Chapter 9.

Appendices

Summary

The aim of the study, described in this thesis, was to determine the effect of early discharge from the acute hospital of elderly hip fracture patients on functional status, mortality, quality of life, complications and costs. Secondary aims were to provide a detailed description of the consequences of hip fracture for the elderly in regard to survival, recovery of function, and the occurrence of complications and to determine which of the 4 used measurement instruments are most appropriate in the follow-up of function and quality of life after hip fracture.

Chapter 2 reviews the international literature concerning the consequences of a hip fracture. The increasing number of elderly people who sustain a hip fracture is causing immense management problems for Western European and North American countries in particular. A review is presented of solutions in several countries to shorten hospital stay and to relieve the pressure on orthopedic/surgical beds.

Joint orthopedic-geriatric collaboration and early discharge to home with additional home support have led to shorter hospital stays. Modest cost savings have been suggested. However, improvement of the still poor prognosis in regard to survival and long-term recovery of function and quality of life has not been achieved. In the Netherlands, the solution has been found in a collaboration between hospitals and nursing homes. Consequently, more hip fracture patients are discharged earlier to rehabilitation wards of nursing homes. This fact has led to the research questions of this study.

In chapter 3, a group of 102 elderly hip fracture patients, who were consecutively admitted to 2 hospitals in Rotterdam, is described. The outcome of these patients was poor: 20% died within 4 months and only 57% of surviving patients returned to their previous living situation. Only 43 % regained their pre-fracture walking ability and only 17% their pre-fracture level of activities of daily living. Their quality of life was worse than the quality of life reported in an age and sex matched reference population.

In chapter 4, the results are presented of the prospective study comparing the

outcome of the 102 patients, described in chapter 2, with the outcome of 106 patients whose discharge from hospital was accelerated. The intervention consisted of the implementation of a discharge protocol and speeding up of indication procedures both for discharge home and for transfer to a nursing home. The second group stayed on average 13 days shorter in the hospital and more patients were earlier discharged to the nursing home. Although the early discharge group showed a trend of slightly better recovery at 1 month, at 4 months no differences were found in survival, recovery of function or quality of life, and type of residence.

Chapter 5 concerns the results of a detailed cost study. The 2 groups of patients were compared in real costs during the stay in institutions (hospitals, nursing homes, and old people's homes) and at home. In addition to the fixed costs of hospitals and nursing homes, all variable costs of interventions, examinations and personnel were calculated on a daily basis and in great detail. The total average costs within 4 months per patient were somewhat lower for the early discharge group (€ 14.281) than for the group of patients who were conventionally managed (€ 15.328). This difference did not reach statistical significance probably because of the wide variability per patient. The early discharge caused a shift of costs from the hospital to the nursing home. The main reason for the absence of large cost savings was that most of the hospital costs were made in the first 5 days postoperatively and that thereafter the average daily hospital costs did not differ much from those in a nursing home. Moreover, the early discharge shifted costs that are needed before discharge and otherwise would have been made later (from interventions and examinations) to the first postoperative days.

In chapter 6 all complications are described that occurred within 4 months in all 208 patients. Probably because of our operational definition (all medical events that required therapeutical intervention) and because of our careful way of registration, more medical complications were found than reported in the literature. The early discharge caused a shift in the location of occurrence: more complications were diagnosed and treated in the nursing home. The accelerated discharge had no influence on the total number and nature of complications within 4 months.

Which measure instruments are appropriate in the follow-up of groups of hip fracture patients in regard to recovery of function and quality of life? Four instruments were used in a comparative study (chapter 7): The Rehabilitation Activities Profile

(RAP), the Barthel Index (BI), the Nottingham Health Profile (NHP), and The COOP/WONCA charts. The RAP was found to be most appropriate to measure recovery in function (mobility, personal care, and instrumental activities of daily living) and the NHP to measure changes in emotional condition, pain sensation, and energy. The total group had significant worse quality of life scores than reported in a reference population. The number of comorbidities at hospital admission was the most important predictor.

The results of these studies are discussed in Chapter 8. The main conclusions are:

1. A hip fracture still has serious consequences in regard to survival, recovery of function and quality of life, and postoperative complications;
2. Early discharge from hospital does not improve or worsen this outcome at 4 months after fracture;
3. Early discharge causes a modest real cost saving which did not reach statistical significance in the present study.

We recommend the intensification of the cooperation between hospitals and nursing homes with the aim of further reducing the hospital stay because of possibly favorable consequences for the waiting lists for orthopedic surgery. We suggest organizing the care of hip fracture patients in specialized hip fracture services.