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Management of fear of falling after hip fracture

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Chapter 8

Summary

SUMMARY

Fall incidents are common in older adults. Annually approximately one in three adults of 65 years and older will experience a fall event, and for the population of 75+ years roughly half will have at least one fall within a year. These fall events often lead to physical injuries, such as head injuries and fractures. A hip fracture is one of the serious injuries that can be sustained as a result of a fall. In the Netherlands, each year approximately 17.500 older adults are admitted to hospital for treatment of a hip fracture. The recovery process after a hip fracture is time-consuming. After surgical repair of the fracture, a period of rehabilitation follows. Approximately half of the older adults with a hip fracture are referred to inpatient geriatric rehabilitation (GR). Many health care professionals are involved in the multidisciplinary geriatric rehabilitation program, including nursing staff, a physical therapist, an occupational therapist, a dietician, and if appropriate a psychologist, social worker or speech therapist. The rehabilitation program is led by an Elderly Care Physician (ECP).

Despite many advances in medical management of hip fractures, both regarding surgical approaches and the rehabilitation for this group of patients, physical recovery after hip fracture is still limited. Many patients do not recover to their pre-fracture level of functioning (ability to perform activities of daily living independently), and often mobility function is limited too. Therefore it is important to be aware of factors that can contribute to or present as a risk factor for impaired recovery after hip fracture. In this context, fear of falling may be of interest.

After an injurious fall such as a hip fracture, older adults are often concerned to fall. This concern about falling is also referred to as fear of falling (FoF). FoF can lead to patients being reluctant to engage in physical activity, and hence can lead to avoidance of activities. This avoidance behavior can consequently hamper physical recovery. Previous literature illustrates that FoF in patients with hip fracture is a risk factor for impaired recovery. To date no treatment programs are available for FoF in this target group. However, in the Netherlands a FoF intervention is available for community-dwelling older adults, and this treatment program has proved to be effective to reduce the FoF. If treatment of FoF in patients with hip fracture leads to reduction of FoF, and consequently to less avoidance of physical activities, this has potential to improve functional outcome for this group of patients.

The research presented in this thesis focusses on FoF in patients with hip fracture and aims to obtain a better understanding of appropriate management of FoF in patients with a recent hip fracture. For this purpose, the FIT-HIP study was developed and performed. The FIT-HIP study aimed to evaluate the effects, feasibility and costs of a treatment program for fear of falling after hip fracture. The main research findings of the FIT-HIP study are briefly discussed below,



together with the results of the other studies presented in this thesis. The economic evaluation of the FIT-HIP study is not included in this thesis.

Main research findings of this thesis

The aim of the FIT-HIP study was to develop and evaluate a treatment program for FoF for patients with a recent hip fracture. Chapter 2 of this thesis presents the study protocol of the FIT-HIP study, including the protocol of the *FIT-HIP intervention*. The FIT-HIP intervention is a multi-component cognitive behavioral treatment program, designed for the inpatient geriatric rehabilitation setting (GR). The intervention is essentially conducted by physiotherapists that are part of the multidisciplinary GR team. The intervention consists of various cognitive behavioral elements aimed at reducing FoF, including guided exposure to feared activities, cognitive restructuring, psycho-education, and relapse prevention. Intervention items are integrated in the physical therapy sessions, and combined with the regular exercise training in GR. Additionally a psychologist - also part of the multidisciplinary GR team - is involved in the intervention and provides additional on-site coaching with regard to the cognitive therapy. The FIT-HIP intervention is provided during the period of inpatient GR.

Chapter 3 describes the results of the study evaluating the effects of the FIT-HIP treatment program. The effects were studied using a cluster randomized controlled trial. The FIT-HIP intervention - integrated in usual care in GR - was compared to care as usual for patients with hip fracture admitted to GR. In total 78 participants were included (from 11 GR units). Study findings showed that the FIT-HIP intervention was not effective in reducing FoF, both directly after discharge from GR, and during the follow-up period up to six months after discharge from GR. Furthermore, the two treatment groups did not differ with regard to improvement in mobility function (balance and gait) during the GR period. Moreover, no differences between the intervention and usual care group were found for ambulation function and self-reported activity restriction up to 6 months after GR.

Chapter 4 of this thesis presents the study findings of the feasibility study, which was performed alongside the effect study. Questionnaires and interviews with intervention facilitators (physiotherapists and psychologists) and study participants were used to evaluate to which extent the FIT-HIP intervention was feasible to perform within the GR setting. The study results show that in general the FIT-HIP intervention was feasible, and that most items were performed according to protocol. However, two important barriers were identified that have potential to hamper performing the intervention according to protocol. The first barrier was a limited level of FoF. An important finding was that after study inclusion, when treatment started, the extent of FoF seemed to be limited for many participants. The physiotherapists therefore advised to start treatment in a later stage of rehabilitation, when the FoF persists over time. The second barrier was that the cognitive restructuring can be challenging for physiotherapists

to perform. For future purposes a more elaborate training regarding this specific intervention element is required. Additionally, it may be beneficial to intensify the collaboration between physiotherapists and psychologists to a form of collective (interdisciplinary) treatment.

In Chapter 5 the coping strategies of patients with fear of falling after hip fracture were explored. Coping refers to cognitive and behavioral strategies that people use to deal with stressful situations. Medical conditions such as a hip fracture affect general health status, daily functioning and quality of life, and can therefore be considered a major stressor for an individual. Coping strategies may influence active participation in and receptiveness to treatment. At present, little is known about the concept of coping after hip fracture, therefore an explorative study based on baseline data of the FIT-HIP study was conducted to gain insight into coping in this population. One of the baseline assessments of the FIT-HIP study was the Utrecht Coping List (UCL), which assesses various coping strategies. In the FIT-HIP study 'active tackling' and 'passive reacting' coping was assessed. In total 72 participants had data available for the UCL. Study results show that one-third of the study population predominantly engaged in active tackling coping. However, passive reacting coping was common too, and almost a quarter predominantly used passive coping strategies. Use of passive reactive coping strategies was associated with more symptoms of depression and anxiety.

The final study presented in this thesis (Chapter 6) focusses on the long-term course of FoF after hip fracture. A possible explanation for lack of efficacy of the FIT-HIP intervention is that study participants had a low extent of fear of falling. Additionally, the timing of the intervention may also contribute to lack of effect. The treatment started directly after admission to GR, which generally represents the second week after fracture. Based on current literature there is evidence that the negative effect of FoF on functional recovery is only applicable for FoF that is present 6 weeks after fracture (or later), and not in very early stages after hip fracture (2 respectively 4 weeks after fracture). This may suggest that FoF that is present very early after fracture could under certain circumstances be a normal, adaptive response. This may also imply that in early stages of rehabilitation not all patients with FoF require treatment for FoF. In view of these findings, we can question how to identify those patients with FoF that may benefit from intervention (i.e. the selection of the target group). We can also question whether treatment in a later stage of recovery may be more appropriate. Insight into the course of FoF after hip fracture may be helpful in this regard. As the long-term course of fear of falling after hip fracture was unknown, we evaluated the course of fear of falling up to one year after fracture. Data from a large inception cohort was used for this purpose. Chapter 6 of this thesis presents the findings of the study evaluating the long-term course of fear of falling after hip fracture. The database used for this study was based on routine data of patients with hip fracture. Patients with hip fracture admitted to the Haaglanden Medical Centre all receive an outpatient follow-up assessment at 6 and 12 weeks after fracture, and one year after hip fracture. Fear of



falling, measured with the Falls Efficacy Scale International (FES-I, 7-item), was assessed as part of the routine data. The FES-I was used to evaluate the long-term course of fear of falling, up to one year after fracture. In our study, we focused on patients that were community-dwelling prior to the fracture.

Study results show that the population based mean FES-I is located around the current established cut-off value of 11, and that levels decrease only slightly over time. There is however a great deal of heterogeneity within the individual trajectories (for individual patients). Therefore specific subgroups were analyzed. The long-term course of FoF was modelled for subgroups based on the short-term FoF trajectories (trend between 6 and 12 weeks). Groups were analyzed based on the following categories: *no FoF* (FES-I below the cut-off value of 11 at 6 and 12 weeks), *transient FoF* (FES-I ≥ 11 at 6 weeks, FES-I < 11 at 12 weeks), *late-onset FoF* (FES-I < 11 at 6 weeks, FES-I ≥ 11 at 12 weeks), and *persistent FoF* (FES-I ≥ 11 at 6 and 12 weeks). Of the 444 patients included, roughly a quarter had persistent FoF at 12 weeks. Compared to patients without FoF (no FoF group; approximately 40%), those with transient FoF (17%), and patients with late-onset FoF (13.5%), the group with persistent FoF had the most profound levels of FoF. Most of these patients still had FoF one year after fracture, and the functional recovery was impaired for this group compared to the other groups. We also evaluated the effect of FoF that was present before fracture (pre-fracture FoF) on the course after fracture. Patients with pre-fracture FoF had higher levels of FoF after fracture, when compared to patients without pre-fracture FoF, but this difference was not significant.

CONCLUSION

Findings from the studies presented in this thesis provide new insights that contribute to management of FoF after recent hip fracture. The FIT-HIP intervention is the first treatment program for FoF in this target group that has been evaluated. Results show that the intervention is not effective in reducing FoF and improving functional recovery in early stages of rehabilitation. Both the selection of the target population and the timing of the intervention may have contributed to lack of treatment effect. There is evidence to suggest that FoF that is present shortly after fracture (< 6 weeks post-fracture) does not by definition have a negative effect on the recovery process. Appropriate selection of the target group, i.e. identifying those patients that may benefit from treatment, remains an important area of attention for both clinical practice and for further research purposes. Timely identification and treatment of patients with persistent FoF is essential. We therefore we recommend regular screening for FoF throughout the transitional care settings during the first 12 weeks after fracture. In addition to monitoring of the levels of FoF (extent of FoF), it also seems important to gain insight into the effects (or consequences) of FoF on daily functioning. For example the extent of (excessive) avoidance of

activities and distress as a result of the FoF. This can help distinguish solely elevated FoF levels, from maladaptive FoF that has an evident negative effect on daily functioning, and thus on the recovery process. Treatment should be aimed at maladaptive FoF.

