Acta Orthop. Belg., 2015, **81**, 447-453

ORIGINAL STUDY

Early follow-up after primary total knee and total hip arthroplasty with rapid recovery : Focus groups

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Rapid recovery protocols reduce the length of hospital stay after Total Knee Arthroplasty (TKA) and Total Hip Arthroplasty (THA). However, little is known about the early postoperative phase. The purpose of this study was to examine which problems patients encountered during the first six weeks after primary TKA or THA surgery with rapid recovery.
We invited twenty patients for a focus group meeting which discussed various subjects regarding the first six weeks after hospital discharge. The focus group meetings were analysed qualitatively.
Patients were mostly satisfied by the short length of hospital stay. Patients who lived alone needs more care and would like to stay longer in the hospital. After THA surgery all patients complained of inability to sleep. More patients experienced pain after TKA surgery compared to THA surgery. All patients had various experiences regarding physical therapy therefore an evidence based rehabilitation protocol might be needed.

Keywords : total knee arthroplasty ; total hip arthroplasty ; rapid recovery ; focus group ; rehabilitation ; qualitative study.

INTRODUCTION

Historically, the length of hospital stay after primary Total Hip Arthroplasty (THA) and primary Total Knee Arthroplasty (TKA) exceeded several weeks, which mainly consisted of a period of bed rest (*2*). However, in the past decades, the length of hospital stay decreased and is currently reduced to only a few days (*11*). This decrease can be explained by the introduction of rapid recovery protocols for elective primary THA and TKA (*1,6,9-11,14-16,23*). Also, a decrease in complications was described (*1,20*) as well as an increase in quality of life after three months (*19*). The number of readmissions did not increase after fast track TKA or THA (*6,12*). Rapid recovery is safe for all patients including elderly patients (*13*).

Conflict of interest : HV is paid speaker for Zimmer Company. SBWV is consultant for Biomet. No further interest to declare.
Authors' contributions : HV, SBWV and NMCM designed this study, organised the focus group meeting and invited the patients. NMCM and JCE wrote the manuscript and performed data analysis. All authors critically reviewed the manuscript and approved the final version of this manuscript.

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Rapid recovery protocols are based on analysis of clinical care principles and pain management in combination with revision of organizational factors, allowing an optimized perioperative period which is safe for the patient (*10,14,15*).

Introduction of the rapid recovery protocol for primary THA and TKA at our institution was completed in February 2011. The introduction resulted in a reduced length of hospital stay after primary THA (*8*). No increase of complications, readmissions and reoperations was found (*8*).

Although many papers discuss the results during the hospital stay, little is known about the early postoperative phase after hospital discharge. Patients might experience specific problems following hospital discharge after rapid recovery, in particular during the first weeks. Therefore, the early postoperative phase of six weeks after hospital discharge after primary TKA or THA surgery with rapid recovery was studied in focus group meetings. The results of this study might be used to optimize the early postoperative phase after rapid recovery.

PATIENTS AND METHODS

Study design

Twenty patients, who underwent THA or TKA surgery at our institution between July 2012 and February 2013, were invited to join a focus group meeting in April 2013. Two focus group meetings were organised, one with ten patients after THA surgery and one with ten patients after TKA surgery. Both groups were interviewed separately, since both groups of patients possibly encountered different problems.

We composed two representative patient groups from our clinical practice. To achieve that, we carefully selected patients based on home situation (single vs. living together), age, gender, and discharge destination (nursing home vs. home). These criteria were divers in order to collect all possible problems which patients could encounter during the first weeks after hospital discharge.

Before the start of the focus group meetings, permission was asked to audio record the discussion. All included patients gave their written informed consent.

The duration of both focus group meetings was 90 minutes. Two independent moderators ensured the focus group meeting progressed smoothly and all topics were covered. Both moderators were experienced with focus group meetings.

Questions

The focus group meetings started with a brief introduction of the moderators and the purpose of the session. Both focus groups had one topic : 'how do patients experience the first six weeks after hospital discharge after TKA or THA surgery with rapid recovery'. Several subtopics like pain, rehabilitation, physical therapy, functional devices, wound care, quality of life and complications were addressed. Questions were asked in an interactive group setting in which participants were free to talk with other group members. The first question was an engagement question to introduce participants to the topic of the discussion and make them comfortable with this. Thereafter questions were posted to explore the experiences of patients. Finally an exit question was posted in order to determine if something was missed during the discussion. Table I presents the focus group questions.

Data analysis

Both focus group meetings were audio recorded and notes were made during the meeting. We analysed the focus group meetings qualitative by describing and summarizing the reactions of patients on the various topics of the focus group. Since the group numbers were small a quantitative analysis was not valid. Answers during the focus group were not linked to a patient ; therefore no correlation was obtained between patient characteristics and answers. We used IBM SPSS Statistics for Windows (version 20.0 Armonk NY : IBM Corp), to describe patient characteristics.

RESULTS

One patient did not show up at the TKA focus group meeting, therefore, nine patients who underwent TKA surgery and ten patients who underwent THA surgery attended the focus group meetings. Patient characteristics are summarized in table II.

Pain

The amount of experienced pain was highly variable between patients, despite all patients were provided with appropriate pain medication. It seemed

Table I. — Questions during the focus group meeting

Engagement question :
• How did you experienced the first six weeks after hospital discharge after THA or TKA surgery with rapid recovery ?
Exploration questions :
• How did you cope with the pain during the first six weeks after hospital discharge ?
• Did you receive physical therapy ? How often ? What sort of treatment did you get ?
• How was your functional rehabilitation ? (stair climbing, get out of bed)
• Did you use functional devices the first six weeks ?
• Did you use medication ? Which medication ? How many ? Did you received clear instructions when to use the medication ? Did you notice improvement ?
• Did you have to deal with adverse events ?
• How was your general health during the first weeks after hospital discharge ?
• Did you use home care services ?
• How did you experience the attainability of the hospital ? Did you receive enough information regarding the first weeks after hospital discharge ?
Exit question :
• Do you have additional subjects you missed during this meeting regarding the first period after hospital discharge ?

more patients experienced pain after TKA surgery then after THA surgery. The need for rescue medication was limited to one TKA patient. Patients experienced most pain during the first weeks after hospital discharge and the pain diminished in time.

Physical therapy

Patients had different experiences regarding physical therapy. All patients received standardized physical therapy at our institution during their hospital stay. Patients learned to walk with crutches, to climb the stairs and to make transfers before discharge. Moreover, patients started with muscle strength exercises during their hospital stay. At home patients continued their treatment with a local physical therapist. However, all physical therapists had different treatment strategies and some patients were doubtful regarding the quality of their physical therapist. Several patients proposed to establish a list of local physical therapists specialised in rehabilitation after joint surgery.

Sleep

All patients who underwent THA surgery complained about their inability to sleep during the first weeks. The reason for their inability to sleep was mostly due to our instructions to sleep only supine or on the operated side during the first six weeks. Both positions were painful and interfered with sleep. In order to gain some sleep, several patients used sleep medication. Patients who underwent TKA surgery did not have any sleeping disturbances.

Wound

Most patients experienced no problems in the treatment of their own wound. Several patients received home care services. In these cases the wound was treated by a trained nurse. Situations when patients needed to contact the orthopaedic consultant for wound infection control were described in our hospital folder and patients were satisfied with that. One patient had doubts concerning his wound and therefore contacted the orthopaedic consultant.

Home care services/nursing home

Several patients of both groups used home care services. Mostly, these patients were living alone. Patients, who lived with their partner or had their children living nearby, did not use home care

Table II. — Patient characteristics of the total study population and separately for TKA and THA focus group

	Total (n = 19)	TKA group (n = 9)	THA group (n = 10)
Age, years	69.9 (6.5)	68.2 (5.3)	71.4 (7.4)
Sex, female	12 (63.2%)	6 (66.7%)	6 (60.0%)
Hospital stay, days	3.4 (1.3)	3.3 (0.7)	3.5 (1.7)
Direction of discharge :			
– Home	17 (89.5%)	8 (88.9%)	9 (90.0%)
– TNH	2 (10.5%)	1 (11.1%)	1 (10.0%)
Home situation :			
– Single / widow	7 (36.8%)	4 (44.4%)	3 (30.0%)
– Together with partner	12 (63.2%)	5 (55.6%)	7 (70.0%)

Abbreviations : TKA, Total Knee Arthroplasty ; THA, Total Hip Arthroplasty ; TNH, Temporary Nursing Home.
All values are presented as mean (standard deviation, SD), or as n (%).

services. Two single living patients chose to go to a temporary nursing home for the first period after hospital discharge.

Functional devices

Patients, in particular single living patients, complained about the use of crutches. Most patients preferred to use a rollator. This device made it possible to transport drinks, food or other objects and still have walking support. Patients numerated several other functional devices which were used during the rehabilitation period at home as special laces, reachers and devices to put on socks.

Attainability of the hospital

All patients were satisfied regarding the attainability of the hospital. As stated before, patients had the opportunity to call an orthopaedic consultant for questions regarding pain, wound care, etc. This was highly appreciated by all patients. Two focus group patients contacted the orthopaedic consultant. One for severe pain and one for wound irritation.

Anticoagulation

Anticoagulation medication is prescribed for six weeks after TKA and THA surgery. Every day patients had to inject Fraxiparine into their subcutaneous abdominal fat. During their hospitalization patients learned to inject themselves. In case the patient received home care services, the injections were administered by trained nurses. Patients mentioned that although they got used to the injections, it still remained strange to do. A few patients would prefer oral medication instead of injections.

Complications

In two patients persistent wound leakage after TKA surgery prolonged their hospital stay for two days. The two patients mentioned earlier, who contacted the orthopaedic consultant, visited the outpatient clinic of the hospital during the first weeks.

Overall, patients were satisfied with the moment of discharge. Some patients would have liked to stay longer because of doubts managing themselves in their home situation. However, despite of their doubts these patients were discharged and experienced no problems during the first weeks.

Patients mentioned that after several weeks, one gets inventive which makes the situation better to handle. In particular the first days after discharge, patients described they did not know how to handle the situation.

Patients who had arthroplasty surgery before, mentioned to be better prepared for the second postoperative situation than during the first joint surgery. These patients knew better what to expect the first

days after discharge, although, all patients mentioned the first surgery was not comparable to the second surgery.

Almost all patients who lived single stated that the first weeks after discharge were hard to deal with. The reason was the combination of pain, loneliness and doubts of prosthesis outcome. Especially this patient group would like to have home care service or would like to go to a nursery home for a few weeks.

DISCUSSION

The aim of this present study was to examine which problems patients encountered during the early postoperative phase of six weeks after hospital discharge after primary TKA or THA with rapid recovery. To the best of our knowledge, this is the first study which examine the first weeks after hospital discharge with rapid recovery.

In general, all nineteen patients were satisfied with the hospital stay, attainability of the hospital and with the reduced length of hospital stay. This is in accordance with two studies by Husted *et al*, in which a high patient satisfaction after rapid recovery has been described (*9,10*).

However, despite the high satisfaction rate, several points of improvement came forward during the focus group meetings. Patients who underwent THA surgery complained about their inability to sleep during the first weeks. All patients were instructed to sleep supine or on the operated side after THA surgery, which are in general not the most favourite positions to sleep in. Krenk *et al* (2012) described sleep deprivation might delay the rehabilitation process and could lead to several problems including hyperalgesia (*18*). Cremeans-Smith *et al* (2006) described that sleep is an essential part of the healing process after TKA surgery (*4*). Moreover they suggest that interventions targeting sleep disruptions may improve the speed and quality of TKA recovery (*4*). Therefore we might adjust our instructions of sleep positions, in order to obtain more comfort for the patient en thereby optimize the rehabilitation. Fewer limitations of sleep positions should lead to better sleep.

Patients had various experiences regarding physical therapy. Physical therapists used different treatment strategies for rehabilitation after TKA and THA surgery. An evidence based protocol for THA and TKA rehabilitation might be needed. This is in accordance with the results of the systematic review of Pozzi *et al* (2013) (*21*). They described the lack of established standards for exercise treatment after TKA surgery. They concluded that strengthening and functional exercises are good treatment options after TKA surgery and should be performed under supervision of a trained physical therapist (*21*). Di Monaco *et al* (2013) concluded that there is insufficient evidence to build a detailed evidence based exercise protocol after hip arthroplasty (*5*). An evidence based protocol is needed, although evidence to make such a protocol is apparently lacking.

Since not all physical therapists are experienced with rehabilitation after prosthesis surgery a referral system might also result in optimized rehabilitation. Schneider *et al* (2009) concluded that good physiotherapy needs to be available for rapid recovery rehabilitation (*22*). In their study only 12% of the THA and 50% of the TKA patients received physiotherapy at home. This is in contrast to the results of our study ; all participating patients had a local physical therapist who visited the patient during the first weeks of their rehabilitation.

We suppose single living patients should be considered as a separate patient group. Apparently living alone makes the first period after hospital discharge more difficult. This group of patients more often needs home care services. Moreover, they would prefer to go to a nursing home for the first days after hospital discharge. Regarding the pain and doubts in patients living alone, extra care at a nursing home before discharge to home might be a good option for these patients. Forrest *et al* (1999) described that patients who were older, live alone or have a high American Society of Anaesthesiologists (ASA) score were more likely to need admission to a rehabilitation unit after total joint replacement with rapid recovery (*7*).

Patients experienced more often pain after TKA surgery compared to THA surgery, despite appropriate pain medication at the moment of hospital discharge. We were not able to obtain the exact

course and intensity of pain during the early follow-up period. However in these groups, most pain was clearly experienced during the first weeks after hospital discharge and diminished in time. This is also described by Chan *et al* (2013) who performed a pain assessment two weeks after discharge after TKA surgery, concluding that effective pain relief after hospital discharge after TKA is a challenge (*3*).

Overall, patients were satisfied with the moment of discharge. Some patients would have preferred to stay longer at the hospital because of doubts managing their selves in their home situation. However, no problems occurred during the first weeks, despite of their doubts. It appeared to be a manner of uncertainty which has been confirmed by the patients during the focus group meetings.

There are some limitations of this study, which need to be addressed.

First, we invited participants who were selected based on age, gender and home situation to join the focus group meetings. We attempted to compose a representative group of patients from our clinical practice in order to find all encountered problems. We are aware of the fact this small number of patients could influence our conclusions and therefore we interpret our results with caution. However, this is a qualitative study and this small number of patients is consistent with qualitative research dmethods (*17*).

Secondly, patients spoke anonymously during the focus group meeting. We were therefore not able to link answers to patient characteristics. Moreover, during simultaneous speaking it was not possible to count the number of reactions on the audio record. However, this was not the purpose of our study. Further studies need to be performed to link specific patient characteristics to the encountered problems.

Thirdly, no objective measurements were obtained during the focus group meeting. This was not possible due to patients who talked simultaneously. Moreover the patient group was too small for statistical analysis. Still, as mentioned before, this is a qualitative study which has specific qualities and restrictions.

Finally, one surgeon was present at the focus group meeting. He did not interfere the discussion. We assumed patients were not influenced by the presence of their surgeon during the focus group meeting and were able to speak freely.

Patients were mostly satisfied by the rapid recovery protocol and the short length of hospital stay. Patients described difficulties during sleep after THA surgery. Several patients had doubts regarding physical therapy and an evidence based protocol for THA and TKA rehabilitation might be needed. The use of a rollator is superior above crutches. Especially patients who lived alone needs more care and would like to stay longer in the hospital or would like to go to a nursery home for rehabilitation. Further studies regarding the first weeks after hospital discharge need to be performed.

Acknowledgements

The authors would like to thank all patients for their effort to join the focus group meeting.

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