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The effects of short-term preoperative physical therapy and education on early functional recovery of patients younger than 70 undergoing total hip arthroplasty

Efekti kratkotrajne preoperativne fizikalne terapije i edukacije na rani funkcijski oporavak bolesnika mlađih od 70 godina sa totalnom artroplastikom kuka

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Abstract

Background/Aim. Hip arthroplasty is a routine operation which relieves pain in patients with osteoarthritis. The role of physical therapy after hip arthroplasty was recognized, but the importance of preoperative physical therapy and education is still to be judged. The aim of this paper was to investigate the effect of short-term preoperative program of education and physical therapy on patients' early functional recovery immediately after total hip arthroplasty (THA). **Methods.** This prospective study included 45 patients with hip osteoarthritis scheduled to undergo primary THA and admitted to the Department of Orthopedics of Military Medical Academy. They were randomized into 2 groups: study and control one (with and without preoperative education and physical therapy). Preoperative education was conducted through conversation (1 appointment with physiatrist) and brochure. The study group was instructed to perform exercises and basic activities from the postoperative rehabilitation program (2 practical classes with physiotherapist). Effects were measured with questionnaires (Harris, Oxford and Japanese Orthopaedic Association (JOA) hip scores), range of motion and visual analog scale of pain. Marks showing ability to perform basic activities and endurance were from 0 (did not perform activity) to 5 (independent and secure). Analyses examined differences between the groups over the preoperative and immediate postoperative periods and 15 months after the operation. **Results.** There were no differences between the groups at discharge according to pain, range of motion, Harris hip score and JOA hip score. Oxford hip score did not differ between the groups 15 months after the operation. The groups started to walk at the same time, but the study group walked up and down stairs (3.7±1.66 *vs* 5.37±1.46, $p \leq 0.002$), used toilet (2.3±0.92 *vs* 3.2±1.24, $p \leq 0.02$) and chair (2.2±1.01 *vs* 3.25±1.21, $p \leq 0.006$) significantly earlier than the control group. On the third day after the operation the study group was significantly more independent than the control one while performing any basic activities (changing position in bed from supine to side lying, from supine to sitting on the edge of the bed, from sitting to standing, from standing to lying in the bad, standing, walking, using toilet and chair). At discharge the patients from the control group still needed the therapist help for walking up and down stairs (3±1.26), while the patients from the study group performed there activities independently (4.85±0.37) ($p \leq 0.000$). Endurance while walking was significantly better in the study group than in the control one. The length of hospital stay after the operation was similar for both groups, but the patients from the study group needed significantly less classes with the therapist (5.2±2.35 *vs* 6.85±1.14, $p \leq 0.02$) during hospital stay. **Conclusion.** The short-term preoperative program of education with the elements of physical therapy accelerated early functional recovery of patients (younger than 70) immediately after THA and we recommend it for routine use.

Key words:
arthroplasty, replacement, hip; physical medicine; recovery of function; patient education; treatment outcome.

Apstrakt

Uvod/Cilj. Artroplatika kuka je rutinska operacija koja bolesnike sa osteoartrozom oslobađa bola. Značaj fizikalne terapije posle artroplastike kuka poznat je, ali se još uvek procenjuje značaj preoperativne fizikalne terapije i edukacije. Cilj rada bio je da se ispita efekat kratkotrajnog preoperativnog programa edukacije i fizikalne terapije na funkcionalni oporavak bolesnika neposredno nakon totalne artroplastike kuka. **Metode.** Prospektivnom studijom obuhvaćeno je 45 bolesnika primljenih na Kliniku za ortopediju Vojnomedicinske akademije radi planirane artroplastika kuka zbog osteoartroze. Podeljeni su u dve grupe: eksperimentnu i kontrolnu (sa preoperativnom edukacijom i

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fizikalnom terapijom i bez nje). Preoperativna edukacija sprovedena je kroz razgovor (jedna poseta fizijatra) i putem brošure. Eksperimentna grupa obučena je da izvede vežbe i aktivnosti iz postoperativnog programa rehabilitacije tokom dva praktična časa sa terapeutom. Efekti su procenjivani uz pomoć upitnika (*Harris, Oxford* i *Japanese Orthopaedic Association* (JOA) skorovi za kuk), obima pokreta i vizuelne analogne skale bola. Ocene za procenu izdržljivosti i sposobnosti da se neka bazična aktivnost izvede bile su od 0 (ne izvodi aktivnost) do 5 (samostalan i siguran). Analizirane su razlike između grupa preoperativno, neposredno nakon operacije, na otpustu i 15 meseci nakon operacije. **Rezultati.** Na otpustu nije postojala razlika između grupa u jačini bola, obimu pokreta i vrednostima *Harris* i JOA skorova za kuk. Vrednost *Oxford* skora za kuk nije se razlikovala između grupa 15 meseci nakon operacije. Bolesnici obe grupe počeli su da hodaju u isto vreme, ali su bolesnici eksperimentne grupe značajno ranije počeli da hodaju uz i niz stepenice (3,7±1,66 *vs* 5,37±1,46, $p \leq 0{,}002$), koriste toalet (2,3±0,92 *vs* 3,2±1,24, $p \leq 0{,}02$) i stolicu (2,2±1,01 *vs* 3,25±1,21, $p \leq 0{,}006$). Trećeg dana od operacije bolesnici iz eksperimentne grupe bili su značajno samostalniji u izvođenju svih osnovnih aktivnosti (promena položaja u krevetu iz ležećeg na leđima u ležeći na boku, iz ležećeg u sedeći na ivici postelje, a zatim u stojeći, vraćanje u krevet, stajanje, hodanje, korišćenje toaleta i stolice). Na otpustu, bolesnicima kontrolne grupe bila je još uvek potrebna pomoć terapeuta pri hodu uz i niz stepenice (3±1,26), dok su bolesnici iz eksperimentne grupe bili samostalni (4,85±0,37)($p \leq 0{,}000$). Izdržljivost pri hodu bila je značajno bolja u eksperimentnoj grupi tokom praćenja u bolnici i na otpustu. Trajanje hospitalizacije nije se razlikovalo između grupa, ali su bolesnici eksperimentne grupe imali znatno manji broj časova sa terapeutom (5,2±2,35 *vs* 6,85±1,14, $p \leq 0{,}02$) u tom periodu. **Zaključak.** Kratkotrajni preoperativni program edukacije sa elementima fizikalne terapije ubrzava rani funkcijski oporavak bolesnika mlađih od 70 godina neposredno nakon artroplastike kuka, te ga preporučujemo u svakodnevnoj praksi.

Ključne reči:
artroplastika kuka; medicina, fizikalna; funkcija, povratak; obrazovanje bolesnika; lečenje, ishod.

Introduction

Hip arthroplasty is a routine operation, which relieves pain in patients with osteoarthritis. That painless state is a good chance for patients to achieve better physical function. Of course, this will happen only if an adequate physical therapy is performed before and after the operation. The role of physical therapy after hip arthroplasty was recognized, but the importance of preoperative physical therapy and education is still to be judged [1–4].

Some investigators concluded that routine use of preoperative physiotherapy (lasting for several weeks) and education program is not useful in total hip replacement therapy [5, 6]. Rooks et al. [7] found that 6-week presurgical exercise program had no effects on outcomes postoperatively but dramatically reduced the odds of inpatient rehabilitation. It seems that only preoperative physical therapy followed by an intensive postsurgery exercise program is effective in improving early recovery of physical function after total hip arthroplasty [8, 9]. So, still, there is not a strong evidence that continuous preoperative physical therapy alone brings significant benefits to patient's functional recovery immediately after operation.

On the other hand, preoperative programs of education appear to have been effective in reducing preoperative anxiety, pain and shortening the hospital stay [10–15]. A considerable reduction in length of hospital stay results in a significant cost saving [11, 16]. But we still do not know much about effects of educative preoperative programs on patients ability to perform basic activities of daily living safely and independently at discharge from an orthopedic unit.

In clinical practice, we observe that patients mostly benefit from preoperative program of education and physical therapy immediately after an operation. But, not a single study investigates the acceleration of patient's functional recovery in that period.

The aim of this study was to examine effects of short-term preoperative program of education and physical therapy on patient's early functional recovery immediately after hip arthroplasty.

Methods

Forty-five patients admitted to the Department of Orthopedics scheduled to undergo primary total hip replacement who satisfied our eligibility criteria were recruited into this study at the authors' institution. The eligible patients were (1) with primary and secondary osteoarthritis, (2) aged 70 and younger, (3) who gave informed consent to participate in the investigation. Additional eligibility criteria included (4) ability to walk up and down stairs, (5) no need for using crutches while walking, (6) no experience in walking with crutches (because of opposite hip arthroplasty or some other reasons) and (7) no coexisting morbidity such as a history of severe cardiovascular, respiratory, neuromuscular, rheumatic disease or mental confusion. Reasons for the patients exclusion through the trail were the appearance of (1) intraoperative (femoral or acetabular fracture) or (2) postoperative complications (postoperative disorientation, anemia, circulatory collapse, orthostatic hypotension, chest pain, sustained hypertension, deep venous thrombosis, pulmonary embolism, hip dislocation) which compromised or delayed the beginning of physical therapy after the operation.

The patients were randomly divided into two groups. The study group received short-term intensive preoperative preparation, which consisted of education and elements of physical therapy. The patients from the study group were informed about the operation, caution measures and rehabilitation after the arthroplasty through conversation with the physiatrist and a brochure. They were instructed by a physiotherapist to perform exercises and basic activities from

the postoperative rehabilitation program, such as bed mobility, getting out and in bed, standing and walking with crutches, use of toilet, sitting on chair, walking up and down stairs with aids. The study group had one appointment with the physiatrist and two practical classes with a physiotherapist. Control group did not receive preoperative education and physical therapy, but both groups had the same program of rehabilitation after the arthroplasty. The program of rehabilitation for patients of both groups started on the first day after the operation.

Visual analog scale (VAS), 0–100 mm, was used for the assessment of pain while moving and at rest. Range of motion (flexion of the hip with flexed knee, flexion of the hip with extended knee, abduction) was measured with goniometry [17]. Harris hip score, hip score of the Japanese Orthopaedic Association (JOA) and Oxford hip score were used for the assessment of functional status [18–20]. All the patients were evaluated an admission, at discharge and 15 months after the operation (Oxford hip score). Patient's ability to perform nine basic activities (1 – change position from supine to side lyng, 2 – change position from supine to sitting, 3 – change position from sitting to standing, 4 – standing, 5 – back to bad, 6 – walking with cruches, 7 – use of toalet, 8 – stting on chair, 9 – walking up and down stairs) and endurance while walking were evaluated at the end of every day of rehabilitation program during hospital stay. Marks showing ability to perform activity were: 0 – if patient did not perform activity, 1 – if a patient was absolutely dependent of the therapist help; 2 – if a patient performed activity with a little therapist help; 3 – a patient needed the therapist's verbal suggestion while performing activity; 4 – a patient performed activity independently but insecurely (needed the presence of another person, a member of family for example); 5 – a patient performed activity independently and securely. Marks showing endurance were: 0 – did not walk; 1 – walked 5 meters (in bedroom); 2 – walked 15 meters; 3 – walked 50 meters; 4 – walked 100 meters; 5 – walked more than 100 meters.

All analyses were performed using SPSS software, version 10.0. Fisher Exact Test, Pearson Chi-squared Test, Mann Whitney Exact Test were used for comparison between the groups. Distribution of variables was shown as mean, standard deviation, medians, range, p – values less than 0.05 were accepted as significant.

Results

Out of the forty-five patients enrolled in the study, five were excluded postoperatively (Figure 1) because of compli-

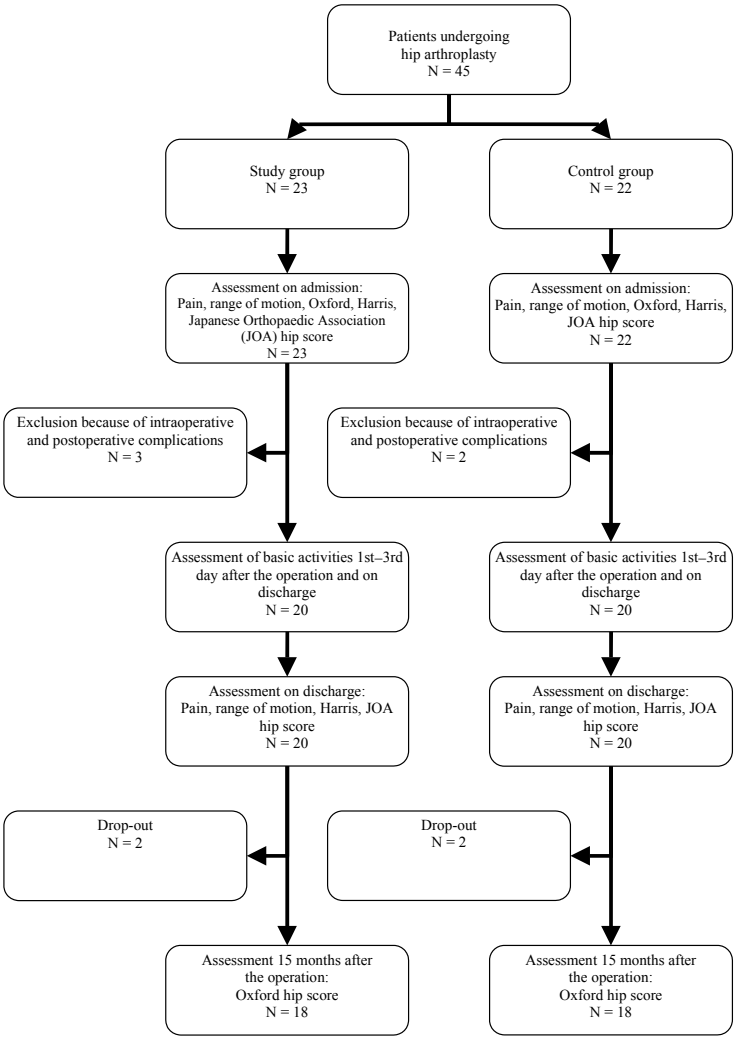

Fig. 1 – Progress through the trail

cations during operation (one fracture of proximal femur, one fracture of acetabulum cavity) or postoperative complications (one patient had hip dislocation, one had seizure of epilepsy and one had gastrointestinal disorder) which compromised or delayed the beginning of physical therapy after the operation. Four participants (two in each group) were lost to follow up 15 months after the operation. The patients' ability to perform nine basic activities and endurance were estimated at the end of every day of rehabilitation program during hospital stay.

Randomization created similar groups at baseline (Table 1). The groups did not differ significantly according to age, gender and duration of disorders, use of analgesics and other medications.

The only difference in baseline measures (Table 2) was higher Oxford hip score in the study group (higher score means worse functional status).

The groups started to walk at the same time, but the study group walked up and down stairs, used toilet and chair significantly earlier than the control group (Table 3).

On the third day after the operation patients from the study group could change position in bed from supine to side lying, from supine to sitting on the edge of the bed, from sitting to standing, from standing to lying in the bad without any help of the therapist (Table 4). Also, on the third day they could stand and walk independently. For all these activities the mean value of marks which the therapists gave to the patients of the study group was higher than 4 and that was much better than the mean value of marks for the control group. At discharge the patients from the control group could perform these activities independently, but not absolutely surely like the patients from the study group (Table 5).

For performing the other three activities (use of toilet and chair, walk up and down stairs) the patients from both groups needed the therapists help longer than 3 days. But the patients from the study group had significantly better marks from the second day postoperatively to the discharge. At discharge all the patients from the study group used toilet and chair independently and safely, which could not be said for the patients of the control group (Table 5). The main differ-

Table 1

Preoperative characteristics of patients

	Study group (n = 23)	Control group (n = 22)	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Age (years)	60.05±11.01; 62.5 (30–70)	56.2±18.45; 66.5 (19–70)	0.77
Female (number, percent)	14 (70%)	16 (80%)	
Years past from the first disorder	8.05±5.89; 6 (1–25)	6.33±7.53; 4 (1–27)	0.06
Months with intensive pain	20.1±14.34; 12 (6–60)	16.35±14.34; 12 (1–36)	0.73
Use of analgetics (number, percent):			
does not use	6 (30%)	4 (20%)	0.48
occasionally	9 (45%)	7 (35%)	
permanently	5 (25%)	9 (45%)	
Number of other medications	2.55±2.39; 2.5 (0–6)	2.25±2; 2.5 (0–6)	0.80

Table 2

Pain, range of motion and functional status of patients on admission

	Study group (n = 23)	Control group (n = 22)	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Pain in rest (VAS*) (mm)	37.45±25.34; 35.5 (0–80)	33.5±29.09; 41 (0–80)	0.66
Pain while move (VAS) (mm)	69.9±19.11; 71 (41–100)	71.95±15.31; 71.5 (50–99)	0.70
Flexion of the hip with flexed knee, degrees	84.5±17.76; 85 (45–115)	91±24.07; 90 (35–135)	0.29
Flexion of the hip with extended knee, degrees	69.25±20.08; 75 (30–90)	79±19.78; 85 (35–110)	0.19
Abduction, degrees	28.25±7.99; 27.5 (15–40)	31±9.26; 30 (15–50)	0.37
Harris hip score	44±7.25; 44.5 (30–63)	45.75±11.82; 46 (26–66)	0.55
JOA† hip score	50±8.66; 49.5 (31–68)	54.75±10.32; 53.5 (38–72)	0.17
Oxford hip score	44.75±5.76; 44.5 (35–56)	38.85±8.01; 41 (21–48)	0.03‡

*Visual analog scale, †Japanese Orthopedic Association hip score, ‡Significant values

Table 3

The first days of activities

	Study group (n = 20)	Control group (n = 20)	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Walking	1.4±0.5; 1 (1–2)	1.75±0.55; 2 (1–3)	0.08
Use of toilet	2.3±0.92; 2 (1–4)	3.2±1.24; 3 (1–6)	0.02*
Use of chair	2.2±1.01; 2 (1–4)	3.25±1.21; 3 (1–6)	0.006*
Walking up and down stairs	3.7±1.66; 3.5 (1–7)	5.37±1.46; 6 (3–8)	0.002*

*Significant values

ence between the groups was their ability to walk up and down stairs. At discharge the patients from the control group still needed the therapist help for walking up and down stairs, while the patients from the study group performed it independently (Table 5).

From the first day after the operation the study group could walk significantly longer than the control group (Tables 4 and 5).

There were no significant differences between the groups on the discharge according to pain, range of motion, Harris hip score and JOA hip score. Oxford hip score did not differ between the groups 15 months after the operation (Table 6).

The length of hospital stay after the operation was similar for both groups (9.8±2.4 *vs* 10.2±1.7, $p \leq 0.67$), but the patients from the study group needed significantly less classes with the therapist (5.2±2.35 *vs* 6.85±1.14, $p \leq 0.02$).

Discussion

The participants from both groups had typical symptoms and signs of severe hip osteoarthritis. Mainly, they were women, 55–60 years old, with disorder started 4–6 years ago and became severe a year ago. All participants had radiological sings of serious osteoarthritis of the hip and they were scheduled for the primary hip arthroplasty.

Table 4

Patients' ability to perform activities on the third day after the operation

	Study group (n = 20)	Control group (n = 20)	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Changing position in bed from supine to side lying	4.55±0.76; 5 (3–5)	3.6±1.1; 3 (2–5)	0.005*
Changing position from supine to sitting on the edge of the bed	4.45±0.83; 5 (3–5)	3.55±1.1; 3 (2–5)	0.01*
From sitting on the edge of the bed to standing	4.45±0.83; 5 (3–5)	3.4±0.99; 3 (2–5)	0.002*
Standing	4.4±0.88; 5 (2–5)	3.3±1.08; 3 (2–5)	0.002*
Changing position from standing to lying in the bed	4.4±0.88; 5 (2–5)	3.25±1.07; 3 (2–5)	0.001*
Walking	4.2±1.11; 5 (2–5)	3.05±1.19; 3 (1–5)	0.005*
Use of toilet	3.7±1.72; 5 (0–5)	1.8±1.91; 2 (0–5)	0.003*
Use of chair	3.65±1.84; 5 (0–5)	1.75±1.86; 2 (0–5)	0.003*
Walk up and down stairs	2.2±2.38; 1 (0–5)	0.4±1.23; 0 (0–4)	0.003*
Endurance while walking	3.55±1.15; 4 (2–5)	2.55±0.94; 2 (2–5)	0.004*

*Significant values

Table 5

Patients' ability to perform activities on the day of discharge

	Study group (n = 18)	Control group (n = 18)	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Changing position in bed from supine to side lying	5±0; 5 (5–5)	4.6±0.68; 5 (3–5)	0.02*
Changing position from supine to sitting on the edge of the bed	5±0; 5 (5–5)	4.55±0.69; 5 (3–5)	0.008*
From sitting on the edge of the bed to standing	5±0; 5 (5–5)	4.55±0.76; 5 (3–5)	0.02*
Standing	5±0; 5 (5–5)	4.55±0.76; 5 (3–5)	0.02*
Changing position from standing to lying in the bed	5±0; 5 (5–5)	4.55±0.76; 5 (3–5)	0.02*
Walking	5±0; 5 (5–5)	4.5±0.89; 5 (2–5)	0.02*
Use of toilet	5±0; 5 (5–5)	4±1.17; 4.5 (2–5)	0.02*
Use of chair	5±0; 5 (5–5)	3.75±1.12; 4 (2–5)	0.000*
Walk up and down stairs	4.85±0.37; 5 (4–5)	3±1.26; 3 (0–5)	0.000*
Endurance while walking	4.9±0.31; 5 (4–5)	3.9±0.97; 4 (2–5)	0.0002*

* Significant values

Tabele 6

Pain, range of motion and functional status at discharge (Harris hip score, JOA hip score) and 15 months after operation (Oxford hip score)

	Study group	Control group	*p*
	x̄±SD; median (range)	x̄±SD; median (range)	
Pain in rest (VAS*) (mm)	3.95±13.08; 0 (0–58)	6.2±14.95; 0 (0–50)	0.89
Pain while move (VAS) (mm)	10.25±17.33; 0 (0–70)	11.5±17.33; 0 (0–60)	0.88
Flexion of the hip with flexed knee, degrees	75.75±12.9; 80 (45–90)	75±12.88; 80 (45–90)	0.82
Flexion of the hip with extended knee, degrees	63.75±11.8; 60 (45–80)	64±15.27; 62.5 (25–90)	0.77
Abduction, degrees	34.25±8.93; 37.5 (15–45)	36±7.88; 40 (20–45)	0.56
Harris hip score	51.25±8.17; 55 (33–64)	50.1±6.17; 52.5 (40–57)	0.34
JOA† hip score	64±6.78; 65 (48–73)	62.6±6.21; 65 (50–71)	0.49
Oxford hip score 15 months after operation	17.06±6.1; 15 (12–33)	17.59±7.84; 16 (12–46)	0.66

*Visual analog scale, †Japanese Orthopaedic Association hip score

For professionals, primary hip arthroplasty is a routine operation today, but for a patient, it is something unknown, potentially painful and disabling, particularly at the beginning. The role of education is to make future familiar [21].

Patient education decreases preoperative anxiety and pain in patients having hip surgery [10]. Unfortunately, we cannot confirm those results. Before the operation, the participants from both groups had intensive pain while moving which diminished at rest but not completely. At discharge, we noticed the mean of pain assessed by VAS decreased in both groups. But there were no differences between groups neither before nor after the operation.

Limited range of motion, restricted ambulance and other activities of daily living were present before the operation in both groups and they mostly did not differ in those parameters. The participants from the study group had statistically higher Oxford hip score before the operation. That result suggested worse functional status of the study group at baseline. But, for the assessment of the functional status we also used Harris and JOA hip scores and then there were no differences between the groups at baseline.

In the study of Wijgman et al. [6] the Harris hip score showed a significant difference favouring the instructed group on day 14 after the operation and at the moment the patients were discharged. Like Gocen et al. [5] in our study there were no significant differences between the groups at discharge with regard to the improvement in Harris hip score. Also, in our study there were no differences between the groups according to functional status assessed by JOA score.

The first day patients could stand, walk, climb stairs was one of the parameters which could be compared. Gocen et al. [5] found that the patients in the study group performed transfer activities earlier than the control group, but that was not the case in Wijgmans et al. [6] study. The results of our trail showed that both groups started walking at the same time, but the study group used toilet and chair, walked up and down stairs earlier than the control group.

It is important when a patient starts doing these activities, but it is more important when that patient becomes independent and secure in performing these activities. These data were not available in other studies. In our study, every day during hospital stay, a physiotherapist assessed patients' ability to perform some basic activities using marks from 0 to 5. Mark 4 meant the first degree of independence; patient could do activity alone, without help or verbal suggestion of a physiotherapist. Already from the third day after the operation, the study group had the mean mark higher than 4 for changing position in bed, getting out and in bed, standing and walking. They trained all basic activities until discharge and went home absolutely independent and mostly secure. Some patients from the control group were insecure at discharge, and, for some activities, they depended on the help of a physiotherapist. So, the mean marks of the control group were significantly worse at the moment of discharge.

Walking up and down stairs was the heaviest activity from the program of the physical therapy. We calculated that on the way from hospital to patient's home, patient had to climb up on average 12–13 steps. So, it is important to them to overcome stairs during hospital stay. The patients from the study group could do it without any problems but the patients from the control group mainly still needed help and suggestions from the physiotherapist.

The study group achieved goals of early postoperative physical therapy earlier and they needed fewer classes with physiotherapist. Length of hospital stay did not differ between the groups because the moment of discharge was mostly planned according to wound healing (10 or 11 day after the operation) and functional recovery did not influence that.

Although Gocen et al. [5] and Wijgman et al. [6] found some positive effects (the study group performed transfer activities earlier than the control group, better value of Harris hip score 2 weeks after operation) they concluded that the routine use of preoperative physiotherapy and education program is not useful in total hip replacement surgery. But these recommendations do not discourage us.

Perhaps, the parameters for assessment in their studies were not appropriate. Harris and JOA hip score can successfully measure remote effects of hip arthroplasty, but maybe they are not sensitive enough to measure effects of preoperative physical therapy and education at the time of discharge from an orthopedic unit. Of course, this state needs to be investigated in another study.

Hip arthroplasty is one of the most successful and cost-effective medical interventions [22]. But, all over the world there is a growing tendency to further reduce health care costs. The goal is to achieve significantly decreased hospital length of stay and lower hospital readmission rates in patients who undergo primary hip arthroplasty. Presented rapid recovery programs for lower-extremity arthroplasty patients had holistic approach and obligatorily included preoperative patient education and intensive postoperative rehabilitation [23].

The influence of the tested continuous preoperative programs of physical therapy and education have some positive effects [5–9] but not strong enough to convince all authors that routine use of preoperative physiotherapy and education program is useful in total hip replacement surgery [2–6].

They put a lot of effort into their programs of continuous preoperative physical therapy and education, but the results were not spectacular.

In view of world's growing tendency to reducing health care costs and unconvincing effects of continuous preoperative physical therapy, we created a short-term preoperative program of education with elements of physical therapy. This preoperative program helped patient scheduled for arthroplasty to overcome basic activities of daily living with minimum practical classes of physical therapy after operation.

These results were gained from one appointment with physiatrist, two practical classes with physiotherapist and from reading brochure with information about arthroplasty and recovery after operation. We practiced this preoperative program after admission in orthopedic unit, but it can be perform like an outpatient activity.

Another study should include patients older than 70 to investigate whether short-term preoperative program improves their early postoperative functional recovery.

Conclusion

The short-term preoperative program of education with elements of physical therapy, presented in this paper, accelerated early functional recovery of patients (younger than 70) immediately after THA. On the third day after the operation, they were able to change position in bed, get out and in bed, stand up and walk independently. At discharge they could use toilet and sit on chair, walk up and down stair without help of physiotherapist. Their endurance while walking was significantly better than in the control group.

The patients who were educated and instructed preoperatively, achieved better functional outcome at discharge with significantly less classes with a therapist during hospital stay. Their functional level at discharge did not require further engagement of a physiotherapist.

The short-term preoperative program of education with the elements of physical therapy is useful for patients undergoing THA and we recommend it for routine use.

R E F E R E N C E S

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