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TRAINING THE PERSON UNDERGOING TOTAL HIP ARTHROPLASTY: CASE REPORT

CAPACITAÇÃO DA PESSOA SUBMETIDA A ARTROPLASTIA TOTAL DA ANCA: RELATO DE CASO

CAPACITACIÓN DE LA PERSONA SOMETIDA A ARTROPLASTIA TOTAL DE CADERA: INFORME DE CASO

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RESUMO

Introdução: A artroplastia total da anca é uma cirurgia ortopédica com grande impacto na funcionalidade e que limita a capacidade para o autocuidado. A intervenção do Enfermeiro de Reabilitação é essencial no ensino, treino e capacitação da pessoa para um processo de transição seguro**.**

Objetivo: Descrever os ganhos da implementação de um plano de Enfermagem de Reabilitação na capacitação de uma pessoa submetida a artroplastia total da anca, que permitam uma transição segura no regresso a casa.

Metodologia: Estudo descritivo, tipo relato de caso, relativo a uma pessoa submetida a artroplastia total da anca. Como instrumentos de avaliação foram utilizados o índice de Barthel, a Medida de Independência Funcional, a Escala Numérica da Dor, o *Timed Up and Go Test*, a escala de Morse, a *Medical Research Council* modificada e a Lista de Verificação da Aprendizagem na Artroplastia Total da Anca. Após identificação dos diagnósticos de Enfermagem foi elaborado e implementado um plano de cuidados de reabilitação individualizado, com base na Ontologia em Enfermagem, e foram apresentados os respetivos resultados.

Resultados: Verificou-se melhoria na capacitação da pessoa submetida a artroplastia da anca. Obtiveram-se ganhos no equilíbrio, diminuição da dor, aumento da força muscular e amplitude articular, diminuição do risco de queda, melhoria no conhecimento, na funcionalidade e na independência no desempenho das atividades de vida diárias.

Conclusão: A implementação de um plano de cuidados de Enfermagem de Reabilitação contribuiu para a melhoria da funcionalidade e capacitação da pessoa submetida a Artroplastia Total da Anca, permitindo uma transição segura.

Descritores: Enfermagem em Reabilitação, Artroplastia de quadril, Relatos de Casos

ABSTRACT

Introduction: Total hip arthroplasty is an orthopedic surgery that significantly impacts functionality and limits the ability for self-care. The intervention of the Rehabilitation Nurses is essential in providing education, training, and empowering the person, ensuring a safe transition process.

Objective: Describe the benefits of implementing a Rehabilitation Nursing plan in the training of a person undergoing total hip arthroplasty, allowing for a safe transition back home.

Methodology: Descriptive study, case report type, regarding a person who underwent total hip arthroplasty. The Barthel index, the Functional Independence Measure, the Numerical Pain Scale, the Timed Up and Go Test, the Morse scale, the modified Medical Research Council and the Learning Checklist in Total Hip Arthroplasty were used as evaluation instruments. After identifying nursing diagnoses, an individualized rehabilitation care plan was developed and implemented based on Nursing Ontology, and the respective outcomes were presented.

Results: There was an improvement in the training of the person undergoing hip arthroplasty. Gains were achieved in balance, pain reduction, increased muscle strength and joint range of motion, reduced fall risk, and improvements in knowledge, functionality and independence in the performing daily living activities.

Conclusion: The implementation of a Rehabilitation Nursing Care Plan contributed to the improvement of functionality and empowerment of the person undergoing Total Hip Arthroplasty, allowing for a safe transition.

Descriptors: Rehabilitation Nursing, Arthroplasty, Replacement, Hip, Case Reports

RESUMEN

Introducción: La artroplastia total de cadera es una cirugía ortopédica con gran impacto en la funcionalidad y que limita la capacidad para el autocuidado. La intervención del Enfermero de Rehabilitación es esencial en la enseñanza, el entrenamiento y la capacitación de la persona para un proceso de transición seguro.

Objetivo: Describir los beneficios de la implementación de un plan de Enfermería de Rehabilitación en la capacitación de una persona sometida a una artroplastia total de cadera, permitiendo una transición segura de regreso a casa.

Metodología: Estudio descriptivo, tipo informe de caso, relativo a una persona sometida a artroplastia total de cadera. Se utilizaron como instrumentos de evaluación el índice de Barthel, la Medida de Independencia Funcional, la Escala Numérica de Dolor, el *Timed Up and Go Test*, la escala de Morse, el *Medical Research Council* modificado y el Lista de verificación de aprendizaje en artroplastia total de cadera. Tras la identificación de los diagnósticos de Enfermería, se elaboró e implementó un plan de cuidados de rehabilitación individualizado, basado en la Ontología en Enfermería, y se presentaron los resultados. correspondientes.

Resultados: Se observó una mejora en la capacitación de la persona sometida a artroplastia de cadera. Se obtuvieron beneficios en el equilibrio, disminución del dolor, aumento de la fuerza muscular y amplitud articular, disminución del riesgo de caídas, mejora del conocimiento, la funcionalidad y la independencia en la realización de las actividades de la vida diaria.

Conclusión: La implementación de un plan de cuidados de Enfermería de Rehabilitación contribuyó a la mejora de la funcionalidad y la capacitación de la persona sometida a Artroplastia Total de Cadera, permitiendo una transición segura.

Descriptores: Enfermería en Rehabilitación, Artroplastia de Reemplazo de Cadera, Informes de Casos

INTRODUCTION

In a world in constant metamorphosis, where time transforms lives and redefines needs, new challenges emerge, requiring strategies to ensure adequate, effective and sustainable care. With the global trend towards an ageing population, associated with longer life expectancy and an increase in obesity, osteoarthritis (OA) has become a growing challenge for health systems, requiring modern, structured and effective approaches to its treatment[1].

OA of the hip or coxarthrosis is one of the most common joint diseases and one of the main causes of disability in the world, affecting more than 500 million people [2], and is even considered to be the most significant musculoskeletal disorder in terms of years lived with disability [3]. It is characterized by progressive wear and tear of the articular cartilage resulting in chronic pain, stiffness and limited range of movement, with significant consequences for mobility and quality of life [4].

Total hip arthroplasty (THA) is the standard treatment of excellence for people with OA if symptoms persist after a conservative approach [2]. This surgical technique consists of the total replacement of the affected joint with the aim of achieving a painless neoarticulation, restoring compromised joint function, improving the ability to perform activities of daily living (ADLs) and quality of life [1].

The limitations that remain after surgical treatment make this a focus of attention for the practice of Rehabilitation Nursing (RN) and the continuity of care a complex challenge [5]. The type of surgery, pain, previous functional deficits and mobility restrictions in the post-operative period result in disability, which, combined with increasingly shorter hospitalization times, requires the intervention of the healthcare team with a focus on training to promote self-care [6].

Rehabilitation programs, started before surgery, should be individualized, based on specific needs, preoperative conditions, possible postoperative complications and functional goals, and maintained until functional capacity is recovered [7]. It is essential to emphasize the importance of education in the OA treatment process, specifically after THA. Empowering the person with information about surgery, self-care strategies and managing expectations is essential to ensure long-term success [1].

Although the intervention of the Rehabilitation Nurse Specialist (RNS) is notable in terms of restoring function, they play a fundamental role in caring the person, training them in self-care and preventing the fragmentation of care during the transition to home [8].

The aim of the RNS's intervention to the person is to enable them to manage the transition they are in, using knowledge to empower them to make autonomous decisions and to learn skills so that they can become independent in their ADLs. [9]. Thus, the RNS is responsible for implementing care plans for the person, enabling them to acquire and develop skills to promote self-care, independence and autonomy [10].

The relevance of this case report stems from the need to deepen knowledge about the importance of training people undergoing THA, which is essential for promoting autonomy and independence. Although there are studies on the post-operative rehabilitation of people who have undergone THA, specific evidence on the direct impact of the RNS's intervention in this process still needs to be researched.

The general objective of this study was to describe the benefits of implementing an RN plan in the training of a person undergoing total hip arthroplasty, allowing for a safe transition back home.

METHODOLOGY

A descriptive case report was developed, with a narrative character of nursing care based on praxis. To ensure greater precision and clarity, this study was prepared in accordance with the guidelines of the *CAse REport* [11].

The participant was selected based on a diagnosis of coxarthrosis, with surgical indication, admitted to the orthopaedic ward. Data was collected by informally interviewing the person and her family and by consulting the case file in the information system. An initial assessment was carried out prior to surgery and subsequent daily assessments.

The use of appropriate data collection instruments is fundamental in RNS care for a correct assessment of the needs of the person being cared for, for the provision of individualized care, as well as for evaluating the effectiveness of interventions. They must therefore have fundamental characteristics, such as validity, responsiveness and reliability, which justify the credibility of the data they produce [12]. Given this premise, instruments were selected, most of which were issued by the Bureau of the College of Rehabilitation Nursing Specialty [13].

The Barthel index, with a score varying between 0 (maximum dependence) and 100 (total independence), was used to assess the person's degree of independence in performing their basic activities of daily living (BADLs) [13].

The Functional Independence Measure (FIM) was used to assess gains in functional capacity, which assesses the motor and cognitive domains, with a maximum total of 126 points, indicating total independence, and a minimum of 18 points, indicating total dependence [13].

Pain control is essential for early rehabilitation and participation in the care plan. Pain was assessed in all sessions using the Numerical Pain Scale [14].

The Timed Up and Go Test (TUGT) was used to assess physical performance in terms of mobility, balance, gait and walking stability, where a faster performance indicates better functional performance, and a longer time is a predictor of a higher risk of falling (>30'indicates a high risk of falling)

[13]. The Simple Balance Assessment scale was used as a complement.

The Morse scale was used to assess the risk of falling, in which a high risk of falling is considered if the score obtained is equal to or greater than 45 points [15].

Maintaining muscle strength and joint range of motion is essential for self-care and performing ADLs. Therefore, the modified Medical Research Council (mMRC) was used, with the aim of increasing the responsiveness provided by the MRC [13, 16], with a maximum value of 5 corresponding to a normal strength assessment. Joint range of motion was assessed using goniometry, with two assessors and two repetitions. [17]. Not all movements were assessed post-operatively, in order to respect the restrictions imposed by the posterior approach of THA.

The ATA Learning Checklist was used to assess pre-operative knowledge and knowledge developed as a result of the RNS's interventions. This comprises a list of educational interventions made up of 16 items which assess the acquisition of knowledge about respiratory functional re-education and motor functional re-education (positioning, bed exercises, getting up, transfers, getting up/sitting down from the chair, using the shower/bathroom/toilet, gait training with a walker/crutch, up/down stairs training, getting in/out of the car and measures to prevent prosthesis dislocation)[18].

The diagnoses were based on Nursing Ontology. The RN plan was implemented from admission to transition to home on the 4th day, adapting the RNS's interventions according to the needs, tolerance and goals of the person being cared for.

The care plan included instruction, teaching and training interventions on respiratory functional rehabilitation, post-THA care, ADL training adjusted to the person's home context, exercise training and gait training. On admission, which took place on the day of the intervention, in addition to the functional assessment, instruction was given on respiratory and motor functional rehabilitation, as well as dislocation prevention measures. One week after discharge, a telephone call was made, following a guide drawn up for the purpose, which covered topics such as managing the therapeutic regime, identifying and preventing complications, the need for additional resources and reinforcing safety precautions. The aim was to monitor the safe transition from hospital care to home care, ensure continuity of care, monitor progress and identify early signs of complications.

The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the Atlantic School of Health n. 20 ESSATLA 2024 (approved on November 8, 2024). This study complied with the ethical guidelines for nursing research, regarding the principle of the relevance of the study, respect for confidentiality, dignity, autonomy and freedom of the participant [19].

CASE PRESENTATION

Initial Assessment and Clinical History

This report discusses the case of a 64-year-old woman who was referred for THA due to coxarthrosis. She lives at home with her partner, who is her main caregiver on discharge. She worked in a restaurant but was unable to work at the time of the assessment. She lives in an apartment on the first floor with an elevator and three steps inside the house. The bathroom has a bathtub with a support bar on the wall.

On admission, she presented with claudication when walking, constant pain in the left trochanteric and inguinal region, radiating to the knee, which increased with weight bearing and at the end of the day, and was classified as a 6 on the numerical pain scale. When it came to performing her BADLs, she walked with the support of a crutch, and had difficulty putting on pants, shoes and socks. When asked about her expectations regarding the outcome of the surgery, she said she wanted to achieve a pain-free state and restore her quality of life.

She underwent an uncemented THA through the posterior or Moore's route, with immediate post-operative radiographic control confirming the position and stability of the implanted prosthesis. During hospitalization, there were no post-operative complications, and she complied with the prescribed intravenous analgesia, without the need for rescue therapy, switching to oral administration on the 3rd day. She was discharged home on the 4th day after admission.

Rehabilitation Nursing Diagnosis and Intervention Plan

Through anamnesis and the application of assessment tools, the RN diagnoses were identified. These allow us to support the implementation of a personalized motor rehabilitation and functional re-education program aimed at promoting self-care and empowering the person after THA. The care plan is described in Table 1 and was drawn up using the Nursing Ontology browser [20], with the RNS's interventions being individualized and supported by specific evidence for the person undergoing THA [17, 21]. Considering the aim of this study, emphasis was placed on interventions at the level of capacity, knowledge and self-efficacy that enable the person to evolve towards mastery in the performance of self-care.

Table 1: RN care plan based on Ontology, for the person undergoing THA

Data: Ability to turn; Self-efficacy to turn **Instruments used:** FIM, Barthel Index	
Focus of Attention/Diagnosis: Self-care - Potential to improve the ability to turn around; Potential to improve self-efficacy to turn around.	
Objectives	**Interventions**
Promote autonomy to turn around	- Evaluate the evolution of the ability to turn/position oneself, on a daily basis. - Instruct and train turning on the 1st post-operative day: Avoid dislocating movements of left hip joint: hip flexion >90º, adduction beyond the midline, internal rotation. - Positioning care: lateral decubitus for the non-intervened side, semi-dorsal decubitus for the intervened side, dorsal decubitus with legs apart/abductor triangle. - Analyze the results achieved with the person and praise their performance.
Data: Knowledge about prevention of hip joint complications while lying down; Adoption of self-management behaviors for hip joint complications during positioning **Instruments used:** THA Learning Checklist	
Focus of Attention/Diagnosis: Self-care - Potential to improve knowledge about preventing hip joint complications while lying down	
Objectives	**Interventions**
Promote self-management: preventing complications in the hip joint	- Evaluate the evolution of knowledge about preventing complications in the hip joint while lying down, on a daily basis. - Teaching about prevention of complications in the hip joint while lying down: dislocation of the prosthesis, in the preoperative and immediate postoperative periods. - Evaluate progress in self-management: prevention of complications in the hip joint. - Provide educational material: pamphlet on care after THA.

Data: Ability to groom, bathe and use the toilet; Awareness of the relationship between device use and autonomy to groom, bathe and use the toilet; Self-efficacy to groom, bathe and use the toilet; **Instruments used:** FIM and Barthel index	
Focus of Attention/Diagnosis: Self-care - Potential to improve the ability to groom, bathe and use the toilet; Potential to improve self-efficacy to groom, bathe and use the toilet	
Objectives	**Interventions**
Promote autonomy in personal hygiene	- Evaluate progress in the ability to groom, bathe and use the toilet, on a daily basis. - Instruction and training in grooming, on the 1st post-operative day. - Instruction and training in bathing, on 2nd post-operative day: If possible, use a shower instead of a bath at home; use support bars; bathe sitting on a suitable stool or bath board; enter the shower/bath first with the non-intervened limb and then with the intervened limb in extension; exit first with the intervened limb in extension and then with the non-intervened limb. - Instruct and train them to use the toilet, on the 1st post-operative day: use the toilet seat riser and support bars; the operated limb in extension; support the upper limbs on the bars and slowly lower yourself until you sit down. Proceed in reverse to stand up. - Evaluate progress in self-management to groom, bathe and use the toilet. - Analyze the results achieved with the person and praise their performance.
Focus of Attention/Diagnosis: Self-care - Potential to improve awareness of the relationship between device use and autonomy to groom, bathe and use the toilet	
Objectives	**Interventions**
Promote autonomy in personal hygiene	- Evaluate the development of awareness of the relationship between the use of devices (grab bars, long-handled sponge, toilet seat lifter, bath board) and autonomy in bathing, grooming and using the toilet. - Analyze with the person the relationship between the use of a device and autonomy in bathing, grooming and using the toilet.

Data: Ability to put on clothes on the lower part of the body, to tie laces, to put on socks, considering restrictions in the movement of the left hip joint; Awareness of the relationship between the use of a device and autonomy in dressing or undressing; Self-efficacy in dressing or undressing. **Instruments used:** FIM and Barthel index	
Focus of Attention/Diagnosis: Self-care - Potential to improve ability to dress or undress; Potential to improve self-efficacy for dressing or undressing	
Objectives	**Interventions**
Promote autonomy in dressing or undressing	- Evaluate the evolution of dressing or undressing, on a daily basis. - Instruction and training in dressing or undressing, on the 1st post-operative day: Dress the lower limb first using tweezers and undress it last. Put on closed, non-slip shoes without laces, using a long-handled shoehorn. - Evaluate progress in self-efficacy for dressing or undressing. - Analyze the results achieved with the person and praise their performance.
Data: Knowledge about prevention of hip joint complications during transfer **Instruments used:** THA Learning Checklist	
Focus of Attention/Diagnosis: Potential to improve knowledge about preventing hip joint complications during transfer	
Objectives	**Interventions**
Promote self-management: preventing complications in the hip joint	- Evaluate the evolution of knowledge about the prevention of complications in the left hip joint during transfer, on a daily basis. - Teaching about the prevention of hip joint complications during transfer, from the preoperative period (taking into account the home context): Getting out of bed - going out on the operated side. Sit on the bed with the support of the forearms, avoiding flexing the trunk more than 90º and keeping the operated limb in extension. Flex the contralateral limb and rotate until it touches the floor; Lie on the bed - enter from the non-intervened side. Lean against the bed, support your arms and sit with the limb in extension. Tilt your torso backwards, rotate your pelvis and legs towards the center of the bed. Do not bring your legs together. Use a pillow if necessary. - Assess progress of self-management: prevention of complications in the hip joint: during hospitalization and through telephone contact after discharge.

Data: Knowledge about prevention of hip joint complications during sitting **Instruments used:** THA Learning Checklist	
Focus of Attention/Diagnosis: Self-care - Potential to improve knowledge about preventing hip joint complications during sitting	
Objectives	**Interventions**
Promote self-management: preventing complications in the hip joint	- Assess progress in knowledge about preventing complications in the hip joint during sitting, on a daily basis. - Teaching about the prevention of complications in the hip joint during sitting, on 1st post-operative day: Intervened limb in extension, with the back to the chair and the popliteal region touching it. Support the upper limbs on the arms of the chair and, avoiding trunk flexion, sit down slowly. When standing up, do the opposite. If the chair does not have armrests, sit sideways using the back and the seat of the chair. - Teach about preventing complications in the hip joint during sitting. - Teach care when getting in and out of the car, on 3rd post-operative day.
Data: Postural control in motion **Instruments used:** TUGT, static and dynamic balance assessment; Morse scale	
Focus of Attention/Diagnosis: Compromised dynamic balance	
Objectives	**Interventions**
Determine evolution of dynamic balance; Improve dynamic balance; Prevent falls	- Evaluate the progress of dynamic balance and monitor the risk of falls, on a daily basis. - Perform dynamic balance training on the 1st lift on the 1st post-operative day (swaying, weight transfer, walking). - Assist with balance training: progression from sitting to standing. - Adjust clothing to prevent falls. - Manage the physical environment to prevent falls: well-lit area, watch out for slippery floors, remove carpets, clear corridors, check the condition of the rubber gait aids.

Data: Ability to walk; Self-efficacy to walk; Satisfaction with walking autonomy and willingness to improve **Instruments used:** TUGT, static and dynamic balance assessment	
Focus of Attention/Diagnosis: Potential to improve ability to walk with a walking aid Potential to improve self-efficacy for walking	
Objectives	**Interventions**
Promote walking autonomy	- Evaluate progress in ability, autonomy and self-efficacy to walk, on a daily basis. - Instruct and train walking with a walking aid: stand up on the 1st post-operative day, with the support of a walker. - Gait training with a walking aid: crutches on the 2nd post-operative day. First the crutches move forward, then the limb that has undergone surgery up to the level of the crutches and finally the limb that has not undergone surgery. To change direction, turn sideways; Climbing stairs: The healthy limb goes up, followed by the operated limb and finally the walking aid; Going downstairs: Descend with the walking aid, intervened limb and healthy limb.
Data: Knowledge about fall prevention; Adoption of fall prevention measures **Instruments used:** THA Learning Checklist	
Focus of Attention/Diagnosis: Potential to improve knowledge of fall prevention	
Objectives	**Interventions**
Promote self-management: preventing falls	- Evaluate the evolution of knowledge about fall prevention, on a daily basis. - Teaching about fall prevention at home, on 2nd post-operative day. - Evaluate progress in self-management: fall prevention. - Provide information leaflet on fall prevention at home.

Data: Left hip joint; Left knee joint; Limited joint mobility; Joint range of motion **Instruments used:** Goniometry	
Focus of Attention/Diagnosis: Joint stiffness	
Objectives	**Interventions**
Determine the evolution of joint range; Avoid worsening joint stiffness	- Evaluate the progress of the range of motion of the hip joint and left knee, on a daily basis. - Perform passive and active-assisted musculo-articular exercise of the limb being treated: mobilization of the knee joint, hip joint up to the limit of pain and in accordance with the limits of the posterior approach route. **Prescription:** Start on the 1st post-operative day, 3 sets, 10 repetitions, progressing according to tolerance.
Data: Strength - muscle contraction; Ability to perform muscle-joint exercises; Self-efficacy to perform muscle-joint exercises **Instruments used:** mMRC	
Focus of Attention/Diagnosis: Potential to improve ability to perform muscle-joint exercises Potential to improve self-efficacy to perform muscle-joint exercises	
Objectives	**Interventions**
Improve muscle strength Promote adherence: muscle and joint exercise regimen	- Evaluate strength progression using the mMRC scale in the different body segments, bilaterally: knee, hip joint, tibiotarsus. - Evaluate progress in ability and self-efficacy to perform muscle-joint exercises; - Instruct and train muscle-joint exercises: - Flexion/extension of the toes; dorsiflexion/plantar flexion bilaterally (1st postoperative day); - Flexion/extension up to 90^0 of the left hip joint with knee flexion and extension; abduction/adduction of the left hip joint to the midline (2nd postoperative day - active; 3rd postoperative day - resisted); - Active and resisted mobilizations of the non-intervened limb (1st post-operative day); **Prescription:** 3 sets, 10 repetitions, 2 times a day, progressing according to tolerance. - Instruct and train isometric exercises: glutes, abdominals, quadriceps, hamstrings; **Prescription:** Start on the 1st post-operative day in the supine position and then seated, 10-second contraction, 3 sets, 10 repetitions, 2 times a day. Progress according to tolerance. - Analyze the results achieved with the person and praise their performance; - Evaluate progress in adherence to muscle-joint exercises.

RESULTS

Table 2: Results obtained on admission and after RNS intervention

Evaluation	Instrument	Admission	1st post-operative day	2nd post-operative day	3rd post-operative day
Functionality	**FIM**	**122**/126	**80**/126	**94**/126	**113**/126
	Barthel Index	**90**/100	**45**/100	**65**/100	**90**/100
Balance (Orthostatism)	**Simple Rating Scale**	S: Main D: Main	S: Main D: **Dec**	S: Main D: Main	S: Main D: Main
	TUGT	25s	-	49,02s	35,01s
Fall Risk	**Morse Scale**	30	35	60	30
Dor	**Escala numérica**	6	5	2	0
Muscular Strength (Lower left limb)	**mMRC**				
	HJ Flexion	4+ (pain)	3	4	5
	HJ Abduction	4- (pain)	3	4	4
	Knee Extension	5	4-	4+	5
	TTJ Flexion/ extension	5/5	5/5	5/5	5/5
Joint range of motion (Lower left limb)	**Goniometry**				
	HJ Flexion	60º	30º	42º	62º
	HJ Extension	10º	-	5º	10º
	HJ Abduction	20º (pain)	20º	25º	27º
	Knee Flexion	120º	90º	110º	120º
	Knee Extension	0º	0º	0º	0º
Distance traveled		25m	2m W	25m C	50m C
THA Learning Checklist		**0**/16	**9**/16	**12**/16	**16**/16

Legend: S - static; D - dynamic; Dec - decreased; Main - maintained; s - seconds; m - meters; C - crutches; W - walker; HJ – Hip Joint; TTJ – Tibiotarsal Joint.

An overall analysis of the data in **Table 2** shows that compliance with the RN program implemented led to an improvement in all the parameters assessed.

The Barthel index shows an increase in dependence in performing BADLs in the post-operative period, with a recovery to values from admission to discharge, classified as mild dependence. The decrease in the FIM score in the immediate post-operative period was also observed, rising to close to the initial values at the time of the transition to the home, with the evolution in the motor score and the capacity for self-care being particularly evident. In

the assessment of locomotion, the distance covered by the person in the last assessment, with two walking aids, exceeds the initial distance.

The type of surgery, the length of stay in bed and the post-operative limitations all affect safety, making it essential to use this tool to implement a safe care plan. There was a high risk of falls on the second post-operative day, which changed to a low risk on the discharge day from the hospital.

The TUGT's performance in the latest evaluation was significantly better than the previous one. The person showed better performance, stability when changing direction and safety when transferring from a sitting to a standing position.

Muscle strength, assessed using the mMRC, increased to values close to normal in the last assessment, in all the segments assessed. In the assessment of muscle strength for flexion of the hip joint, the final score exceeded the initial score, going from mild muscle weakness, closely associated with pain, to active movement against gravity, unable to overcome any resistance after the intervention, to normal strength at the time of discharge. The results were similar regarding joint amplitude measured using a goniometer during active joint mobilization. It is possible to observe a decrease in the range of motion in the flexion of the knee and hip joints on the first and second day after THA, and in the last evaluation there was a relevant recovery to admission values, with a slight increase of 2^0 in the flexion of the hip joint. In hip joint abduction, there was a comparative increase of 7^0.

Characterized as intense pain at the time of the initial assessment, it decreased in all the assessments and was absent at the time of discharge.

The application of the THA Learning Checklist highlighted the lack of knowledge about post-THA care in the preoperative period, which was remedied during hospitalization. At the time of discharge, the person demonstrated the acquisition of knowledge, which is fundamental for a safe transition process.

In the telephone contact made a week after discharge, it was possible to identify the person's doubts and concerns, and to reinforce trust and adherence to the rehabilitation plan. There were no signs of post-operative complications and they were taught about safety measures and adaptation to the home after THA were reinforced. The person showed adherence to the rehabilitation process, satisfaction with the RN care and mastery of the transition process.

DISCUSSION

The person undergoing THA experiences different types of transitions that contribute to the fact that, when they return home, they are often in a worse functional condition than they were before hospitalization [5]. The results obtained in this study show a clear recovery in functional independence, essentially reflected in the favorable evolution of the Barthel index and FIM scores. The use of these instruments was justified by their complementarity in assessing functionality and independence in self-care. The Barthel Index, widely used in literature, allowed, in this context, the comparison of results with other studies. On the other hand, the FIM, due to its greater sensitivity to functional changes, enabled the identification of specific areas that required intervention. Unlike the Barthel Index, the results obtained through the application of the FIM did not reach the initial assessment, being representative of some loss of functional capacity at the time of discharge.

In this report, substantial improvements were observed between the first post-operative day and the time of discharge, after the implementation of a RN care plan. Similar results were found in other studies, which used the Barthel index to document their benefits. The "*Habilitar*" project, whose aim is for the RNS to intervene in the teaching, instruction and training of people undergoing total hip/knee arthroplasty, obtained similar results and confirms that its implementation allows for the early empowerment of people, maximizing their functional potential, independence, social reintegration and quality of life[22].

A systematic review of the literature aimed to identify the gains sensitive to RN care in promoting the self-care of people undergoing THA showed that the intervention of the RNS is essential to promote interventions at the level of knowledge, aimed at training for self-care, thus acting to maintain or increase functionality[23].

The RN plan included early mobilization and lifting, on the first day after surgery. This principle is supported by the evidence that points to early mobilization as the gold standard for recovering functional capacity, due to its benefits in improving pain, strength, balance, performance in ADLs and preventing adverse events such as falls and thromboembolic phenomena [24].

The teaching and training of exercises was started while still in bed, according to the person's ability and the limitations imposed by the surgery. In the immediate post-operative period, there was a decrease in strength and range of motion of the hip and knee joints, with recovery by the time of discharge. Exercise training benefits muscle strength and improves balance, which is essential for good functional performance [24].

Although the effectiveness of exercise in improving functional capacity early on has been confirmed, the suggestion for practice is to implement structured programs with a follow-up of between 4 and 12 weeks for more consistent results, as suggested by the evidence [25].

With regard to the Learning Checklist, at the time of admission the person had no knowledge

of care and limitations after THA. Applying this tool makes it possible to identify the gains from the RNS's educational intervention [18], as well as to identify needs and plan interventions with the person to enable them to achieve their health project. It can be seen that the RNS's intervention led to moments of adaptive learning which enabled the person to be empowered as early as possible, with a view to maximizing their functional potential.

Currently there are specific programs such as Rapid Recovery or Fast-Track aimed at recovery and rehabilitation after THA, with great consensus at international level for their results in terms of performance and functional independence. Several studies have shown that the implementation of the ERAS program (*Enhanced Recovery After Surgery*) promotes early mobility, restores joint function, reduces length of stay, improves quality of life, reduces complications, readmissions and hospital costs [26]. This program encompasses a multidisciplinary approach focused on the person's recovery after THA through preoperative (person education, nutritional optimization, risk factor reduction), intraoperative (pain and bleeding control) and postoperative (pain control, early mobilization, teaching and ADL training) interventions. Discharge requirements include dressing and undressing independently, transferring, sitting and standing, personal hygiene and mobilization with a walking aid [21].

The evidence in Portugal confirms results similar to those presented in this report and which corroborate the international reality. RN care for people undergoing THA resulted in improvements in functionality, pain, balance and muscle strength [27]. In addition to these, RN-sensitive gains have been demonstrated in terms of the acquisition of knowledge, leading to the empowerment and capacity building of the person [18].

The RNS's role in enabling people to return home should be a central concern in care planning to ensure a safe transition, with health education, help with social rehabilitation and follow-up after discharge being essential focuses [8]. In order to guarantee continuity of care, telephone contact was made with the person who contributed to the safe transition to the home. Follow-up after discharge is particularly important for counseling, clarifying doubts, identifying complications and reducing readmissions [24].

The literature shows that increased satisfaction, adherence to the rehabilitation program and independence for self-care are influenced by post-operative pain control [2]. Early RNS intervention after surgery demonstrates an improvement in pain management and accelerates rehabilitation progress through the person's greater participation in care [28]. The person's main desired outcome was to live pain-free, so this was an important focus when planning the RN interventions.

Although at the time of discharge the person had made an effective recovery and was able to transition safely home, a limitation of this study was the impossibility of the family's active involvement in the care due to the main caregiver's job. For a safe transition, all the necessary help must be guaranteed in the face of the difficulties experienced by the person and their caregivers, minimizing their side effects and promoting training to adapt to this new reality (6). As a complementary resource, in the interventions to teach and train RN, information leaflets were provided in the service with text and images on care after THA and prevention of falls at home which, although they do not replace the presence of the family, allow strategies to be reinforced when returning home.

Another limitation was the admission of the patient on the day of surgery. With such a short time, the necessary preoperative preparation and the person's own anxiety about the approaching intervention led to insufficient and often depersonalized RN care. Studies emphasize the importance of preoperative education and rehabilitation, based on the degree of independence and ability to perform ADLs, for faster and more efficient functional recovery [22]. The evidence shows that preoperative consultations associated with structured rehabilitation programs bring advantages such as effective pain and anxiety management, increase knowledge about the surgery and the repercussions on self-care, and promote adherence to the program; the lack of such consultations can lead to a lack of discharge planning, with a negative impact on self-care and the transition to home [8]. Poor preoperative preparation also leads to poorly performed rehabilitation exercises and a higher rate of prosthesis dislocation after discharge [29]. In view of the above, the intervention during this period focused on teaching and training respiratory functional re-education, interventions in terms of knowledge about safety measures, namely prevention of prosthesis dislocation, and the importance of early mobilization to prevent complications.

According to a review on the importance of RN in the perioperative period, it is concluded that the benefits produced by the intervention of these professionals through structured programs initiated in the preoperative period, corroborate the need for the integration of RN teams, due to the results in terms of early rehabilitation, promotion of social integration, quality of life, well-being and satisfaction with care, thus producing health gains [30].

CONCLUSION

This case report emphasized the importance of an early RN program until the safe transition to home, guaranteeing continuity of care. The results reflect the aim of the study and reveal gains that are sensitive to RN care, namely in terms of knowledge, training for self-care and functional capacity, which are reflected in improved performance of

ADLs, increased muscle strength and joint range, reduced pain and risk of falling, improved balance and walking ability.

The aim of the RNS in functional motor re-education, with teaching and training of ADLs, is to promote self-care, stimulate autonomy and restore independence, despite the restrictions caused by the surgery. Throughout its implementation, several adjustments were necessary depending on the person's acquisition of knowledge and adaptation to the home context to facilitate a safe transition.

It can therefore be said that the RNS is the professional with the necessary skills to implement intervention strategies that enable the person to acquire knowledge and strategies for adapting to the new health condition.

The perspective of the person being cared for: She showed satisfaction with the care provided, saying that she felt supported and confident to face the challenges imposed by her new health condition.

Informed consent statement: Written informed consent to present this work was obtained from the participant.

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