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Prosthetic Training for a 92-Year-Old Woman with Right Transtibial Amputation: A Case Study

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ABSTRACT: This case touches on an elderly female with a transtibial amputation who had participated in a Home to Heal program and was returning to inpatient rehab for prosthetic training. This patient had limiting factors including delayed wound healing, arthritis, mild cognitive impairments, decreased family support for her rehab process and a slight decrease in mood/motivation.

KEY WORDS: Transtibial, older adult, delayed wound healing, arthritis

I. INTRODUCTION

Prosthetic training for geriatric patients presents a unique set of challenges that necessitate a nuanced and individualized approach. This case study focuses on a 92-year-old woman who underwent a transtibial amputation due to ischemia of the right leg, a condition exacerbated by her complex medical history, which includes peripheral vascular disease, diabetes, and rheumatoid arthritis. As she transitioned from a Home to Heal program back to inpatient rehabilitation for prosthetic training, several limiting factors emerged, including delayed wound healing, mild cognitive impairments, and decreased family support. These factors not only impacted her physical rehabilitation but also influenced her emotional well-being and motivation. By examining this case, we aim to shed light on the interplay between comorbidities and rehabilitation outcomes, emphasizing the importance of a multidisciplinary approach that addresses both the physical and psychosocial aspects of recovery for older adults navigating the challenges of limb loss.

II. PATIENT CHARACTERISTICS

She was born in Surat, is in her late 80s, and has a history
of PVD, diabetes, hypertension and RA. Ischemia of the right leg led to a transtibial amputation. While waiting for her wound to heal, she returned home where she managed using a manual wheelchair for mobility and pivot transferring to other surfaces.

III. EXAMINATION FINDINGS

- Below knee amputation, edmea of about 12-13 inch circumference, a small skin opening which was very shallow and almost healed and scab along incision

Body Function and Structure (impairments)

- Affected gait, transfers, hip contracture from prolonged sitting, standing balance poor on one leg due arthritis in intact knee, no phantom pain or residual limb pain at rest, but client had minimal phantom sensations of toes present. Used depression and cognitive screens - no signs of depression, mild cognitive impairments

Activities (limitations)

- Completed an initial assessment which addresses mobility, BADLs, IADLs, leisure, to obtain the following: decreased mobility, wheelchair user, toileted on wheeled commode and difficulty accessing bathroom, dressed independent in sitting/lying, used wheeltrans for tranportation, PSW assistance for bathing, hands affected by arthritis affected daily activities, assistance from daughter re: IADLs (meal prep, cleaning, shopping)

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Participation (restrictions)

- Most IADLs affected, client requires assistance from family members. Is retired. Tends to stay home more often.

Environmental Factors

- CCAC involved, monitored by outpatient clinic and has regular appointments with amputee clinic. Supportive family but also decreased commitment from family to participate in client's rehab.

Personal Factors

- Slight lack in motivation and overall mood, tends to be less proactive

IV. CLINICAL HYPOTHESIS

The client's main issues include comorbidities which will affect prosthetic training, cognitive issues and lack of family involvement in her prosthetic rehab. Has delayed wound healing, which may lead to increased discharge with wearing prosthesis, unknown healing under scab. Oedema needs to be managed. Multidisciplinary team needs to be involved with wound assessment, treatment and monitoring.

V. INTERVENTION

- Desensitization and light scar massage[1]
- Therapists wrapped client's stump as client would not be able to learn wrapping, client educated on applying shrinker sock and positioning
- Client admitted for prosthetic training - taught to don/doff prosthesis, sit-stand transfer, transfer onto different surfaces, ambulation with gait aid, standing exercises to increase weight-bearing on prosthesis, functional mobility, IADL tasks with walker and tray, skin care for stump and intact leg
- Participated in strength training, stretching, balance exercises
- Educated on stomach lying[2]
- Family member taught how to assist client with donning prosthesis
- Applied heat to help manage arthritic pain
- Liaised with the team regarding wound healing and prosthetic tolerance
- The client was provided with guidelines for wearing a prosthesis
- The client followed through with the recommended equipment of a 2-wheeled walker and walker tray
- Follow-up arranged in an outpatient clinic

VI. OUTCOME

- The client required help donning a prosthesis due to arthritis in their hands and decreased judgment of the prosthesis fit
- Sometimes client had difficulty putting on the prosthesis due to stump volume therefore therapists needed to wrap the stump prior and ensure it was elevated on the amp board
- A family member was educated about prosthesis but not until the very end of rehab stay and family member demonstrated decreased interest
- Client able to doff prosthesis appropriately
- The client limited the amount of time she could wear the prosthesis due to small skin openings along the incision [3]
- The client followed up in the amputee clinic and mobility clinic

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VII. DISCUSSION

Overall, this case showed how delayed wound healing, cognitive issues, decreased family support and comorbidities such as arthritis can impact prosthetic training. The client ended up going home and not wearing the prosthesis for the first week since she was concerned about the delayed wound healing. It is important the client was able to return to her home after the amputation and experience functioning without a leg in her home environment. Sometimes I wonder if she began her prosthetic training too early. I also wonder if it would have been possible to arrange family involvement in a different way and sooner in her rehab stay.

VIII. CONCLUSION

This case study illustrates the significant impact of comorbidities, cognitive challenges, and family dynamics on the rehabilitation process for geriatric amputees. The patient's experience emphasizes the necessity for timely intervention, individualized care plans, and active family involvement to ensure effective prosthetic training. While the journey toward rehabilitation may be fraught with obstacles, adopting a holistic approach that encompasses both physical rehabilitation and emotional support can lead to improved outcomes and a better quality of life for older adults facing the realities of amputation. Ultimately, this case highlights the need for healthcare providers to remain adaptable and responsive to the unique needs of geriatric patients, fostering an environment that promotes recovery and independence.

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