The importance of multidisciplinary approach in management of pressure injury in elderly with multiple comorbidities

Dina Kusumawardhani
Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Shannaz Nadia Yusharyahya
Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Lili Legiawati
Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia

See next page for additional authors

Follow this and additional works at: https://scholarhub.ui.ac.id/jdvi

Part of the Dermatology Commons

Recommended Citation
Kusumawardhani, Dina; Yusharyahya, Shannaz Nadia; Legiawati, Lili; Astriningrum, Rinadewi; and Adistri, Kara (2023) "The importance of multidisciplinary approach in management of pressure injury in elderly with multiple comorbidities," Journal of General - Procedural Dermatology & Venereology Indonesia: Vol. 7: Iss. 2, Article 5.
DOI: 10.7454/jdvi.v7i2.1151
Available at: https://scholarhub.ui.ac.id/jdvi/vol7/iss2/5

This Article is brought to you for free and open access by the Faculty of Medicine at UI Scholars Hub. It has been accepted for inclusion in Journal of General - Procedural Dermatology & Venereology Indonesia by an authorized editor of UI Scholars Hub.
The importance of multidisciplinary approach in management of pressure injury in elderly with multiple comorbidities

Cover Page Footnote
None

Authors
- Dina Kusumawardhani
  *Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia*
- Shannaz Nadia Yusharyahya
  *Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia*
- Lili Legiawati
  *Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia*
- Rinadewi Astriningrum
  *Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia*
- Kara Adistri
  *Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia*

This article is available in Journal of General - Procedural Dermatology & Venereology Indonesia: https://scholarhub.ui.ac.id/jdvi/vol7/iss2/5
The importance of multidisciplinary approach in management of pressure injury in elderly with multiple comorbidities

Dina Kusumawardhani, Shannaz Nadia Yusharyahya, Lili Legiawati, Rinadewi Astriningrum, Kara Adistri

Department of Dermatology and Venereology, Faculty of Medicine, Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia

Email: dinawardhani.dr@gmail.com

Abstract

Background: Pressure injury (PI) can occur as a result of prolonged bed rest in immobilized patients. The healing process is often slow if the wounds are not managed comprehensively, particularly in elderly patients or patients with neurological disorder, diabetes mellitus, and malnutrition. Proper treatment can improve the healing process.

Case illustration: A 66-year-old female with multiple comorbidities presented with PI on the left lower back, as well as the sacral and right gluteal regions. She was diagnosed with grade 3 and unstageable PI, and was treated using a multidisciplinary approach. Her wounds were treated with a combination of hydrogels and polyurethane foam dressings.

Discussion: Managing comorbidities, optimizing local wound care, regular repositioning in special mattress, and improving nutritional status are necessary to accelerate healing in cases of PI. There was an increase in the wound granulation and epithelialization, as well as a decrease in the ulcer size and exudates after 16 weeks of treatment. A considerable amount of time is needed to treat grade 3 and unstageable PI in an immobile elderly patient with multiple comorbidities.

Conclusion: Multidisciplinary collaboration among healthcare workers is essential for the treatment of PI in elderly populations.

Keywords: elderly, multidisciplinary treatment, pressure injury, wound care

Background

The term pressure injury (PI) has replaced various terms, including pressure wound, pressure ulcer, or bed sore. It is a more accurate label compared to “pressure ulcer”, since the condition may not present as an ulcer. The national pressure injury advisory panel (NPIAP) currently defines pressure injury as a localized damage to the skin and underlying soft tissue, usually over bony prominences or related to a medical or other device. The injury can present as intact skin or an open ulcer, and may be painful. Some of the risk factors for PI are prolonged bed rest resulting in excessive and sustained pressure, accompanied by friction and/or shearing force.\textsuperscript{1,2} Patients with neurological disorders have a 25-85\% increased risk of experiencing PI.\textsuperscript{3} The prevalence of PI in Indonesia is 8.0\%.\textsuperscript{4} All age groups can experience PI, particularly elderly patients with neurological disorders who suffer from impaired sensation or mobilization.\textsuperscript{3} Other risk factors are microclimate, obesity, diabetes mellitus, cardiovascular disease, and nutritional disorders.\textsuperscript{1,5} The burden of PI can implicate physical, social, economic, and psychological aspects, as well as reduce the patient's quality of life. The main purpose of PI treatment is to accelerate the wound healing process and reduce the risks of complications.\textsuperscript{5} This case report shows the complexities and treatment of PI in an elderly patient with multiple comorbidities.

Case Illustration

A 66-year-old female came to outpatient clinic with...
multiple ulcers on her left lower back, right gluteal, and sacral regions, which had persisted for 6 months. The patient had a history of ischemic stroke, vascular dementia, bullous pemphigoid, normal pressure hydrocephalus, malnutrition, diabetes mellitus, and dyslipidemia. She had been bedridden for 2 years due to her condition. She used urinary catheter and diapers every day. Her vital signs were within normal limit.

Physical examination revealed a body mass index (BMI) of 12.9 kg/m² (underweight), right hemiparesis and disuse atrophy of all extremities. She had multiple ulcers measuring 2x3x0.5cm to 4x6x0.5cm, and was diagnosed as stage 3 PI on the left lower back and the sacral region, and unstageable stage PI on the right gluteal region, with moderate slough and eschar (Figure 1). Routine laboratory tests were unremarkable.

Regular repositioning had not been conducted and the wounds did not respond well to conventional normal saline dressings. The dressing was changed into a hydrogel sheet covered with a polyurethane foam dressing. The modern dressings were changed every 3 days preceded by cleansing with normal saline. The patient was consulted to a nutrition specialist for the management of severe malnutrition and received a specialized diet of 1700 kcal/day through a nasogastric tube. She was also consulted to a neurologist, an internal medicine specialist, and a physiatrist. The PI improved at each follow-up visit, as noted by the smaller size of the wounds and a clean, healthy wound bed. There was an increase in the wound granulation and epithelialization, as well as a significant decrease in the ulcer size and exudates after 16 weeks of treatment with hydrogel sheet and polyurethane foam dressing (Figure 2). The patient’s guardian signed the informed consent form and approved the patient’s case and photos to be published.

Figure 1. Pre-Treatment Pressure Injury (PI) Wounds. A. Left lower back (grade 3 PI). B. Right gluteal region (unstageable PI). C. Sacral region (grade 3 PI).

Figure 2. Pressure Injury (PI) Wounds after 16 Weeks of Treatment. A. Left lower back. B. Right gluteal region. C. Sacral region. The wounds’ diameters were reduced to 50-90% of the initial size.
Discussion

The patient was clinically diagnosed with grade 3 and unstageable PI based on the NPIAP staging system. Pressure injury is a burden, not only due to its high incidence and prevalence, but also due to its effects on health and quality of life. Various intrinsic and extrinsic factors influence PI. Extrinsic factors include pressure, shearing force, friction, and humidity, while intrinsic factors include malnutrition, neurological disorders, cognitive impairment, age, and diabetes mellitus. All of these risk factors were identified in our patients (Braden scale score of 7), so she had a very high risk of developing PI. The patient was bedridden and was previously diagnosed with ischemic stroke, vascular dementia, bullous pemphigoid, malnutrition, and diabetes mellitus.

We advised the caregivers to change the patient’s diaper regularly, do reposition every 2 hours, use a decubitus mattress, limit sitting time in a wheelchair, and inspect at-risk skin regularly. Pillows or cushions are used to reduce pressure on the existing pressure injuries or vulnerable skin areas, by elevating them away from support surfaces. There are certain positions that greatly increase the forces of friction and shear experienced by the patients, such as the semi-Fowler position (the head of the bed at an angle greater than thirty degrees, and sitting in a reclined position). These forces can be reduced by having the patient raise their knees in bed before raising the head of the bed, tilting the bed instead of reclining it, and making sure that the patient’s feet are supported when they sit. Turning sheets are used for repositioning to reduce the forces, friction, and shear.

Hygiene and moisture reduction are critical, particularly for patients who are incontinent, as too much moisture is known to damage the skin. The patient’s skin needs to be always kept dry. Control of wound colonization and infection should always be prioritized. The PI and surrounding skin should be cleansed with normal saline at each dressing change to remove surface debris, bacteria, and contaminants. The patient was treated with a hydrogel sheet and polyurethane foam dressing. Hydrogels consist of intricate hydrophilic polymers with a high (90%) water content. These polymers expand in water despite being water insoluble. Semi-occlusive hydrogel dressings were applied to help autolytic debridement and to rehydrate eschar.

Hydrogel dressings have antimicrobial effects and provide a moist environment that facilitates cell migration and absorbs some exudates. In comparison to non-hydrogel dressings, systematic reviews and meta-analyses of studies indicate that the use of hydrogel dressings leads to a noticeable improvement in the wound healing process, an increase in the cure rate, and a satisfactory reduction of discomfort. Polyurethane foam dressing can accommodate a medium-to-high amount of wound exudates and can act as a cushion. The patient's wound bed was covered with a hydrogel dressing, followed by a hydrocolloid foam dressing. Additionally, the wound was covered with thick gauze to reduce the burden of the ulcer. The wound dressing was changed every 3 days or earlier if contaminated with feces. Treatment of underlying infection with topical or systemic antibiotic medications might be needed to help the healing process.

Soaps, alcohol-based lotions, and hot water should be avoided when bathing, as these can cause dry skin. Skin emollients are used every day to maintain supple hydrated skin and reduce skin damage. The skin and wound were evaluated continuously every two weeks by a dermatologist. Physiotherapist team provided exercises and a strategy to improve the patient’s mobility. The patient was given strength exercise, passive stretches, and range of motion physiotherapy exercise. The primary caregiver was trained by the physiotherapist to guide the patient in performing home-based physical exercise. Nutrition plays an important role in reducing the risk of PI and accelerating wound healing.

Malnutrition increases the severity of wound infection and reduces collagen deposition and tensile strength during the healing process. The recommendation for calorie and protein intake in PI patients is at least 30-35 kcal/kg/day and 1.25-1.5 grams protein/kg/day. The patient received adequate enteral feeding with a total calorie intake of 1700 kcal/day through a nasogastric tube. Our case report demonstrates that the healing process gradually improved after the patient has better nutritional intake, especially in terms of protein. The patient visited a nutritionist and a physiotherapist every two weeks. The patient also received treatments from neurologist and internal medicine specialist for her comorbidities. The patient had a one-month interval between treatments at the outpatient clinic.

The wounds in the current patient appeared to improve significantly after proper wound treatment, improved nutrition, and better daily care by her caregivers. Caregivers should be well educated in the prevention and management of PI. To ensure
the caregivers’ compliance with the wound care instructions, we provided thorough explanations of wound care instructions, answered their questions, and addressed their concerns. Additionally, we offered written instructions and follow-up calls to ensure that they felt supported throughout the healing process.

Conclusion

This paper reports a case of multiple chronic PI s in an immobile elderly patient with multiple comorbidities, which included neurological disorder, malnutrition, cognitive impairment, and diabetes mellitus. We observed that a proper treatment with a multidisciplinary approach accelerated the healing process (including autolytic debridement), improved nutritional status, and ensured optimal control of comorbidities and precautions to prevent PI.

Acknowledgments

None.

Author Contribution

All authors contribute equally for this project in the study preparation, data collection, case analysis and the writing of the manuscript.

Conflict of interest

No conflict of interest.

References