Nursing Care: Making a Big Difference in Stage 3 Bed Sore

Manju Chhugani¹, Sweta Mary Jacob², Merlin Mary James³

Abstract

Efficient nursing care with regular assessment, positioning, exercises and the prescribed treatment improved the condition of the patient and it took 4 months for healing of bed sores. This case report concerns a 78-year-old bed-ridden elderly woman, diagnosed with Parkinson’s disease, rheumatoid arthritis and stage-III bed sore. The patient was admitted to the special ward of Hakeem Abdul Hakeem Centenary Hospital (HAHC), New Delhi, with the chief complaints of poor intake of food, pain in legs and back, fatigability since one month and a sore in the buttock and the right iliac spine region as she was bed ridden. During physical examination, the patient was conscious and oriented but the slurring of speech was present, tremors were there, lead pipe rigidity was present, gait could not be assessed, the GCS score was 15/15. She had stage 3 bed sore [6 cm*8 cm]. Contractures in elbow, wrist hand, and knee were present. After all the investigation, she was diagnosed with malnourishment with Parkinson and rheumatoid arthritis and stage 3 bed sores in right iliac region and sacrum region.

Keywords: Nursing care, Bed sore, Pressure ulcer, Decubitus

Introduction

Bed sores/pressure sores remain a significant healthcare concern, especially in the elderly and immobile population. Older people very often are less mobile, impaired in nutrition and have a poor general condition. A good prevention and treatment is obligatory to avoid bed sores that can easily infect and lead to more morbidity. Curative dressings can help wound healing and avoid further problems.¹

Case Report

The patient was admitted to a special ward of Hakeem Abdul Hameed Centenary Hospital, New Delhi, on 24th Dec 2016 with the chief complaints of poor intake of food, pain in legs and back, fatigability since one month and a sore in the buttock and the iliac spine region as she was bed ridden since the last two years. During physical examination, the patient was conscious and oriented but slurring of speech was present, tremors were there, lead pipe rigidity was present, gait could not be assessed, the GCS score was 15/15. She had stage 3 bed sore [6 cm*8 cm]. Contractures in elbow, wrist hand, knees were present. After all the investigation, she was diagnosed with malnourishment with Parkinson and Rheumatoid arthritis and stage 3 bed sore.

Efficient nursing care, daily observation, proper positioning, exercises and the prescribed treatment improved the patient’s condition and her bed sore took 4 months for healing. Patient dressing was done regularly by the nursing staff by Nemicorp bed sore dressing, the wound was properly irrigated with normal saline and H₂O₂ dressing was done regularly on alternate days. Wound mechanical debridement was done till the wound did not look fresh. Pus culture

¹Principal, ²³Tutor, Rufaida College of Nursing, Jamia Hamdard.

Correspondence: Ms. Sweta Mary Jacob, Rufaida College of Nursing, Jamia Hamdard.

E-mail Id: swetamj237@gmail.com

Orcid Id: https://orcid.org/0000-0002-2071-5455

How to cite this article: Chhugani M, Jacob SM, James MM. Nursing Care: Making a Big Difference in Stage 3 Bed Sore. Int J Nurs Midwif Res 2017; 4(4): 60-64.

Digital Object Identifier (DOI): https://doi.org/10.24321/2455.9318.201746

ISSN: 2455-9318

© ADR Journals 2017. All Rights Reserved.
was sent at regular intervals, which showed microorganism *Pseudomonas Aeruginosa*, which was treated by proper antibiotic therapy. Gentle passive ROM exercises and deep-breathing exercises were performed with the help of a physiotherapist, two-hourly positioning was done and an air mattress was provided to the patient by the nurses. A well-balanced diet, rich in protein content was provided to the patient as her blood investigation reported of hypoalbuminemia (serum albumin 2.8 gm/dL), and protein was also helpful in healing of bed sores. It took four months for the bed sores to improve.

**Epidemiology**

The incidence of pressure ulcers is different in each clinical setting. Incidence rates of as low as 0.4% to as high as 38% have been reported in the inpatient department while prevalence has been reported as 3.5% to 69%. In Indian setting, the prevalence of pressure ulcers in hospitalized patients has been reported to be 4.94% in a study conducted by Chauhan et al. Patients with bed sores have high mortality rates. Ueda et al. have reported 22% mortality over 6 years follow-up of 23 patients with pressure ulcers. Kuwahara et al. reported 68.8% mortality amongst elderly patients with NPUAP stage 3 and 4 pressure ulcers, because of secondary systemic complications.

**Pathophysiology**

Prolonged weight-bearing and mechanical shear forces act on areas of soft tissue overlying bony prominence → when this pressure exceeds normal capillary perfusion pressure (32 mm Hg) → occlusion and tearing of small blood vessels → reduced tissue perfusion → ischemic necrosis → Pressure sore.

Four forces are responsible for bed sores:

**Pressure**

Force applied to soft tissue between hard surface and bony prominence. When skin and the underlying tissues are trapped between bone and a surface such as a wheelchair or bed, blood flow is restricted. This deprives tissue of oxygen and other nutrients leading to tissue death.

**Friction**

Resistance of one body sliding or rolling over another, making skin more susceptible to pressure sores.

**Shear**

This occurs when skin moves in one direction, and the underlying bone moves in another. Sliding down in a bed or chair or raising the head of bed more than 30 degrees is especially likely to cause shearing, which stretches and tears cell walls and tiny blood vessels. Especially affected are areas such as tailbone where skin is already thin and fragile.

**Strain**

Tissue deformation in response to pressure.

**Classification of Pressure Ulcer**

The definitions of the four pressure ulcer stages are revised periodically by the National Pressure Ulcer Advisor Panel (NPUAP) in the United States and the European Pressure Ulcer Advisor Panel (EPUAP) in Europe. Briefly, they are as follows:

**Stage: 1**

Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area. The area differs in characteristics such as thickness and temperature as compared to adjacent tissue.

**Stage: 2**

Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister. Presents as a shiny or dry shallow ulcer without slough or bruising.

**Stage: 3**

Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscles are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling. The depth of a stage 3 pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and stage 3 ulcers can be shallow.

**Stage: 4**

Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling. The depth of a stage 4 pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and these ulcers can be shallow. Stage 4 ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule), making osteomyelitis likely to occur.
Unstageable

Full thickness tissue loss in which actual depth of the ulcer is completely obscured by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels is normally protective and should not be removed.

Suspected Deep Tissue Injury

A purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. A deep tissue injury may be difficult to detect in individuals with dark skin tones. Evolution may include a thin blister over a dark wound bed.

Management of Bed Sores

Although it may take some time, most stage 1 and stage 2 sores will heal within weeks with conservative measures. But stage 3 and stage 4 wounds, which are less likely to resolve on their own, may require surgery.

Changing Positions Often

Carefully follow the schedule for turning and repositioning – approximately every 15 minutes, if in a wheelchair, and at least once every two hours when in bed. If unable to change position on own, a family member or other caregiver must be able to help.

Using Support Surfaces

These are special cushions, pads, mattresses and beds that relieve pressure on an existing sore and help protect vulnerable areas from further breakdown.

Cleaning

It is essential to keep wounds clean to prevent infection. A stage 1 wound can be gently washed with water and mild soap, but open sores should be cleaned with a saltwater (saline) solution each time the dressing is changed. Avoid antiseptics such as hydrogen peroxide and iodine, which can damage sensitive tissue and delay healing.

Dressings

A dressing promotes healing by keeping a wound moist, creating a barrier against infection and keeping the surrounding skin dry. Dressing choices include films, gauzes, gels, foams and treated coverings. A combination of dressings may be used. The selection of dressing is based on a number of factors, such as the size and severity of the wound, the amount of discharge, and the ease of placing and removing the dressing.

Controlling Incontinence

As far as possible, it is crucial to helping sores. Urinary or bowel incontinence may cause excess moisture and bacteria on the skin, increasing the risk of infection. Managing incontinence may help improve healing. Strategies include...
frequently scheduled help with urinating, frequent diaper changes, protective lotions on healthy skin, and urinary catheters or rectal tube. Infected pressure sores that are not responding to other interventions may be treated with topical or oral antibiotics.

**Healthy Diet**

To promote wound healing, your doctor or dietitian may recommend an increase in calories and fluids, a high-protein diet, and an increase in foods rich in vitamins and minerals. You may be advised to take dietary supplements, such as vitamin C and zinc.

**Educating the Caregiver**

**Removing Damaged Tissue**

To heal properly, wounds need to be free of damaged, dead or infected tissue. Removing this tissue (debridement) is accomplished with a number of methods, depending on the severity of the wound, overall condition of the patient and the treatment goals.

**Debridement**

Surgical debridement involves cutting away dead tissue and mechanical debridement loosens and removes wound debris. This may be done with a pressurized irrigation device, low-frequency mist ultrasound or specialized dressings. Autolytic debridement enhances the body’s natural process of using enzymes to break down dead tissue. This method may be used on smaller, uninfected wounds and involves special dressings to keep the wound moist and clean. Enzymatic debridement involves applying chemical enzymes and appropriate dressings to break down dead tissue.\(^7\)

**Risk Factors of Bed Sores**\(^7\)

- Spinal cord injury, traumatic brain injury, neuromuscular disorders, immobility
- Malnutrition, fecal and urinary incontinence, altered level of consciousness
- Chronic systemic illness, fractures, aging skin, decreased epidermal turnover
- Decreased pain perception

**Risk Assessment Scales to Assess the Grades of Pressure Ulcers**

Nurses are placed in a position where they have the greatest responsibility of implementing the proposed mechanisms of preventing bed sores. For assessment, nurses can use the following scales:

**Norton Scale**

A scale used to predict the likelihood a patient will develop pressure ulcers. The patient is rated from 1 (low risk) to 4 (high risk) using the following five criteria: Physical condition, mental condition, activity, mobility, and incontinence. See Table 1. The patient is rated from 1 to 4 on the five risk factors listed. A score of ≤14 indicates risk for decubitus ulcers, or pressure sores.

**Braden Scale**

The same scale has been modified for predicting pressure ulcer risk in pediatric patients of ≥9 years of age, which is popularized as Modified Braden scale. In this scale, only the interpretation score differs from the original Braden scale\(^6\).

| Physical Condition | Mental State | Activity | Mobility | Incontinence |
|--------------------|--------------|----------|----------|--------------|
| Good               | Alert        | Full     | Not      |
| Fair               | Apathetic    | Slightly limited | Occasionally |
| Poor               | Confused     | Very limited | Usually urinary |
| Very bad           | Stuporous    | Immobile | Double |

This scale is rated in scientific journals as having the best sensitivity and specificity. This scoring system is technically demanding and requires some training to use it properly.

**Nurses’ Role in Prevention and Management of Bed Sores**

Bed sores are one of the indicators of quality of nursing care and cause anxiety and stress for all nursing staff; however, the pressure ulcer prevention and management is a vital part of nursing practice as all nurses are at the forefront of predicting the patients at risk for bed sores, subsequent to which the nurses provide measures to the patient for healing of pressure ulcer.

Recent researches have reported that bed sores remain a major health problem among high-risk hospitalized patients, particularly critically ill patients. Moreover, the prevention
of pressure ulcer is considered as the responsibility of nursing staff. As prediction and prevention of bed sores involves healthcare personnel in many disciplines, nurses are patients’ primary caregivers, resulting to which they have the most important responsibility for preventing and managing this complication.

Jogindra et al.\textsuperscript{10} conducted a study on nurses’ role in the management and prevention of pressure ulcers. This is a study which was conducted on 118 patients admitted on either a general medical ward or neuro-surgical ward. It is a generalized study but yielded much information regarding not only the nature of bed sores (pressure ulcers) but also the different ways of preventing them. In this study, it was revealed that 4.1% to 29% of patients get bed sores while hospitalized or even while receiving medical attention at home. It also established that the medical staff, especially the nurses who are charged with the responsibility of maintaining patient care, were responsible for letting such ulcers develop due to the patients complaints they ignored or failed to observe the obvious pressure areas for redness or skin peeling off. Only 10% of nurses were observed to be inspecting patients of any swelling, itching, swelling or decorations. It was revealed that 20% of all the nurses were even not equipped with the right skills or experience of observing bed sores. Importantly quoted by this paper is the fact that, bed sores not only causes much pain to the patients, but also adds more work for the healthcare as they open opportunities for opportunistic infections, leave alone the burden of treating them.

The role of nurses is paramount in preventing and managing bed sores. Daily observation by the nursing staff is, however, vital in predicting bed sores. In another study conducted by Clarke et al.,\textsuperscript{11} the nurses’ role in prevention of bed sores was clearly evaluated. They pointed out the negligence of patients’ needs as the main cause of unnecessary bed sores. According to the patients, it was revealed that hospitalized patients are more vulnerable to bed sores (29%) than community patients (20%), thus putting nurses’ responsibility at question. An important finding of this study, however, was that the nurses’ dedication to prevention of bed sores in terms of frequency of checking and time was directly proportional to the effectiveness and the expected outcome.\textsuperscript{11}

When a patient is bedridden or immobilized, nurses need to make sure that all bony prominences like the hips, buttocks area, and heels are protected. Such measures would include placement of pillows and heel protectors to keep the patient’s heels protected. In many circumstances, when a patient has a high risk of developing pressure sores, the nursing staff needs to advocate for a specialized bed, such as an alternating air pressure mattress, to preserve skin integrity. Another important nursing responsibility is to reposition the patient at frequent intervals, to relieve weight bearing on the same spots.

**Conclusion**

The role of nurses is paramount in preventing and managing bed sores. Efficient nursing care, proper assessment and timely interventions help the patient to recuperate from decubitus ulcers.

**Conflict of Interest:** None

**References**

1. http://www.hubrussel.net/wound-ex-site/Wound/Wound-bestanden-en-afbeeldingen/Wound-ex-bestanden-en-afbeeldingen-Documenten/Case-report--Pressure-sore-in-the-sacral-region-(1).pdf
2. Cuddigan J, Ayello EA, Sussman C et al. Pressure ulcers in America: Prevalence, incidence, and implications for the future. An executive summary of the National Pressure Ulcer Advisory Panel. PubMed 2001:153.
3. Leblebici B, Turhan N, Adam M et al. Clinical and epidemiologic evaluation of pressure ulcers in patients at a university hospital in Turkey. *J Wound Ostomy Continence Nurs.* 2007; 34: 407-11.
4. Chauhan VS, Goel S, Kumar P et al. The prevalence of pressure ulcers in hospitalized patients in a university hospital in India. *J Wound Care* 2005; 14: 36-37.
5. Ueda K, Tajima S, Sano S et al. Mortality and recurrence rate after pressure ulcer operation for elderly long-term bedridden patients. *J Osaka Med Coll.* 1990; 49: 58-63.
6. Kuwahara M, Tada H, Mashiba K et al. Mortality and recurrence rate after pressure ulcer operation for elderly long-term bedridden patients. *Ann Plast Surg.* 2005; 54: 629-32.
7. https://www.slideshare.net/MohitGulati13/pressure-sores-55126646.
8. National Pressure Ulcer Advisory Panel (NPUAP).
9. EPUAP – European Pressure Ulcer Advisory Panel.
10. Jogindra V, Suksham C, Walia I. Nurses’ role in the management and prevention of pressure ulcers – A study. *Nursing Journal of India* May 2004.
11. Clarke M, Phil H, Kadhom M. The nursing prevention of pressure sores in hospital and community patients. *Journal of Advanced Nursing* 2006; 13(3): 365-73.