



Brief Communication

Stage 4 Sacral Pressure Injuries Among Fully Dependent Older Adults During the COVID-19 Pandemic

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ABSTRACT

The COVID-19 pandemic significantly affected clinical and support services for older people in Brunei. There was an observed increase in dependent older adults admitted with Stage 4 pressure injuries with underlying osteomyelitis during the first six-months of the pandemic. The nine patients are described, with a high rate of frailty, malnutrition, and clinician concerns regarding care provided at home. All patients were assessed as having moderate pain, needed a prolonged duration of broad spectrum antibiotics in hospital and a high rate of inpatient mortality. Prevention of pressure injuries in the community should be emphasised to reduce the risk of these complications in fully dependent older people, regardless of the pandemic situation.

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1. INTRODUCTION

The global pandemic caused by the SARS-CoV-2 virus significantly affected clinical and support services for older people. In Brunei, the first local case was identified on 9th March 2020, with rapid implementation of restrictions, including social distancing measures.¹ Outpatient clinics and nurse-led home visits were cancelled, as healthcare professionals were deployed to manage acute COVID-19 patients. During this time, it was observed that there was an increase in dependent older adults admitted with severe pressure injuries.

In this paper, older patients admitted with Stage 4 sacral pressure injuries and underlying osteomyelitis during the six-months when the COVID-19 pandemic affected local essential services for older people are described.

2. METHODS

Patients aged 65 years and older admitted under Geriatric Medicine in Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital with infected Stage 4 sacral pressure injuries between March to August 2020 were included. Data was obtained from the national electronic health records and nursing wound charts.

Data collected include patient demographics, underlying comorbidities, frailty and malnutrition, pressure injury stage and size, tissue culture results, availability of home equipment to reduce risk of pressure injury and available social support. Frailty was rated based on the 9-point Clinical Frailty Scale (CFS), scoring patients between 1 (very fit) to 9 (terminally unwell).² The Malnutrition Universal Screening Tool (MUST) is routinely used to screen for

malnutrition in admitted inpatients.³

The wound assessment and management chart is completed by geriatric medicine nursing staff and documents the size and location of the wound, underlying tissue bed, wound margin, surrounding skin, presence of pain and exudate including type, odour and amount. It also emphasizes the TIME approach for wound management, based on the wound tissue, managing infection and inflammation, moisture balance and optimizing the wound edge for healing.⁴

Data collected was entered into Excel and analysed using descriptive statistics.

3. RESULTS

There were 9 patients identified. The median age was 80 (range 75 to 85 years) and the majority, 7 (77.8%) were female. All patients were bedbound and considered 'very severely frail', scoring 8 on the Clinical Frailty Scale, with a high risk of malnutrition scoring 3 or 4 on the MUST tool. 4 (44.4%) had both ischaemic heart disease and diabetes. For all these patients, the clinicians had concerns regarding care provided at home due to limited family support, or caregivers having difficulty with performing regular turns in immobile patients to reduce risk of pressure injuries. 6 (66.7%) did not have equipment at home, such as a pressure relieving mattress or hospital bed.

On admission, the surface area of pressure injury involvement varied between 1 cm x 1 cm (and depth of 5 cm), to 10 cm x 15 cm. 4 (44.4%) of the patients initially presented with unstagable pressure injuries, which after debridement confirmed full skin and tissue loss with exposed underlying structures. The unstagable pressure injuries had overlying necrotic tissue with surrounding inflamed or macerated skin, and associated purulent and malodorous exudate.

All patients were assessed as having moderate pain, scoring 6 to 8 out of 10 on pain assessment tools, requiring regular analgesia and for breakthrough pain before routine cares, debridement and wound dressings. Most (88.9%) were referred for orthopaedics or plastic surgery input, in addition to bedside wound debridement by nurses. A patient had delayed wound debridement due to haemodynamic instability for the first three days of admission.

All patients were treated empirically with broad spectrum intravenous antibiotics (Piperacillin/Tazobactam or Meropenem) on admission. Tissue cultures all grew Gram-negative bacteria, with specific details of organisms listed in Table 1.

Outcomes for these patients were poor, with 6 (66.7%)

Table 1. Organisms cultured from wounds

Proteus sp. including mirabilis and penneri
E. Coli including extended spectrum beta-lactamases (ESBL)
Klebsiella pneumonia
Serratia fonticola
Pseudomonas Aeruginosa
Morganella morganii
Acinetobacter baumannii (ACBA)

inpatient mortality from sepsis secondary to infected Stage 4 pressure injuries. The remaining three patients completed six weeks of intravenous antibiotics for osteomyelitis and were discharged with community nursing follow-up with an average total length of stay of 43 days.

4. DISCUSSION

This was a retrospective review of patients admitted with infected Stage 4 sacral pressure injuries complicated by osteomyelitis during the start of the COVID-19 pandemic. These patients have a high rate of inpatient mortality, while survivors required a prolonged length of stay to complete the course of intravenous antibiotics.

Based on the discussion with a geriatric medicine senior staff nurse, there were about three fully dependent patients admitted with Stage 4 pressure injuries mainly due to poor cares and neglect in the community each year. Almost all patients were discharged to the community after intravenous antibiotics with community nursing follow-up. Therefore, these nine patients admitted during the six-month period of the COVID-19 pandemic represent a significant increase in severe pressure injuries and a cause for concern.

This observed increase in pressure injury complications was likely contributed by reduced community nursing and support services at that time. Social distancing measures may also have limited available family support to provide care. As these pressure injuries were severe, it was likely that older people and caregivers or family members deferred seeking medical attention; possibly due to fears of contracting COVID-19 in hospital.

There is no published literature available regarding patients who developed severe pressure injuries in the community during the COVID-19 pandemic. However, there is data to suggest an increased incidence of up to 57% of COVID-19 patients nursed in the prone position, as well as medical device-related pressure injuries due to intubation and positioning.^{5,6}

Pressure injuries are indicators of health care quality.⁷

They tend to occur over bony prominences such as the sacrum. These result from multiple factors, including immobility, exposure of tissues to repeated friction and shear force, poor vascular perfusion, reduced pain perception, malnutrition and poor integrity of skin due to ageing or incontinence. Sacral pressure injuries may lead to open wounds, with a high risk of bacterial contamination due to a warm and moist environment, resulting in delayed wound healing.⁸ Infections from pressure injuries may lead to complications such as bacteraemia, sepsis and osteomyelitis. Typical signs of sepsis may be subtle or absent in older people or those with immune compromise. Common organisms isolated from pressure injuries are *Proteus mirabilis*, Group D *Streptococci*, *Escherichia Coli*, *Staphylococcus*, *Pseudomonas* and *Corynebacterium*. Antibiotic therapy should be tailored to include broad spectrum coverage for these common offending organisms, as poor antibiotic selection can lead to resistance and non-healing wounds.⁹

However, despite prolonged antibiotics for pressure injuries complicated by osteomyelitis, the infection is usually difficult to eradicate with associated poor outcomes.¹⁰ Thus, prevention of pressure injuries should be emphasised, particularly for dependent patients in the community.

It is important to highlight vulnerable older patients who are at risk of developing pressure injuries, particularly those with dementia, frailty, malnutrition and limited social support. Ongoing reinforcement of cares and pressure injury prevention for caregivers of dependent older adults should occur regularly, despite pandemic situations. While outpatient clinic follow-up and community nursing home visits were limited during the pandemic, other options such as virtual clinic reviews or phone-call follow-up should be considered.

5. CONCLUSION

There was a locally observed increase in Stage 4 sacral pressure injuries complicated by osteomyelitis among dependent older people during the COVID-19 pandemic. These are associated with poor outcomes and mortality. Pressure injury prevention should be emphasised for dependent older people regardless of the pandemic.

CONFLICTS OF INTEREST

The authors do not have direct or financial conflicts of interests to declare.

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