A Re-audit of Pressure Sores in ICU Spinal Patients Following New Manual Handling Guidelines

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INTRODUCTION

What are Pressure Sores?

- Defined as 'an area of skin and the tissues below damaged as a result of being placed under pressure sufficient to impair its blood supply'.
- Typically occur in patients confined to bed or chair by illness, e.g. Spinal Cord Injuries (SCI) **(1)**
- They can be graded 1to 4 **(2)**

Image 1: Example of an occipital pressure sore (4)

Pressure Sores and Spinal Patients

A 2022 audit conducted in the University Hospital of Wales' ICU found that 15.5% of spinal patients in ICU developed pressure sores. Reasons for these include the prolonged periods of immobility and other co-morbidities **(3)**. Since then, new manual handling guidelines have been implemented (Figure 1) and this study aims to evaluate the impact of these changes on pressure sore incidence.

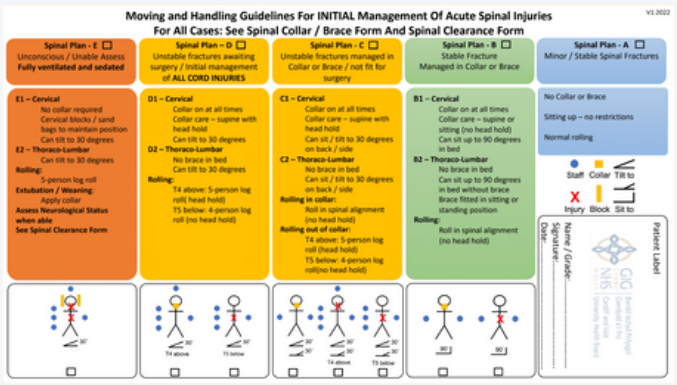

Figure 1: New Manual Handling Guidelines for Acute Spinal Injury Management

AIMS

- Evaluating the impact of protocol changes on patient outcomes
- Examining frequency of pressure sores in ICU spinal patients at University Hospital of Wales, Cardiff .
- Completing data analysis on patient demographics.

CRITERIA

Inclusion:

- Patients admitted to ICU with any spinal injury or pathology between January 2023 and December 2024.
- Grade 2 or above pressure sores over bony prominences such as occiput, sacrum, neck, heel and chin.

Exclusion:

- Patients admitted outside of this timeframe.
- Pressure sores Grade 1 or below.
- Pressure sores over non-bony prominences or caused by intubation (including but not limited to the mouth).

METHODOLOGY

1. A DATIX database was produced with all reported ICU pressure sores between January 2023 and December 2024
2. Through notes and discharge summaries, patients reported with any spinal injury or pathology were highlighted.
3. A separate database was then produced with all patients with spinal injury or pathology admitted to the ICU between this time frame.
4. Information regarding demographics, grade, location and guideline adherence were taken from DATIX and hospital notes.
5. Data analysis was completed using SPSS.

RESULTS

There were 91 ICU spinal patients on the spinal database, of which 2 were excluded as they were misreported as spinal patients, and 4 others excluded due to still being in hospital at the time of this study. Therefore, a total of 84 spinal patients were included:

- Of these 12 spinal patients developed one or more pressure sores in ICU (14.3%)
- 35.3% were G2 or above occiput (n=6), 23.5% were sacral (n=4), 23.5% were heel (n=4) and 5.9% were collar/lower neck (n=1)

The following data was then collected and compared between patients who developed pressures in ICU (n=12) versus those who did not (n=72):

- Age on Admission
- Duration of Hospital Stay and ICU Stay
- Duration on Advanced Respiratory Support
- Head Injury
- Adherence to Manual Handling Guidelines

Aside from age on admission, all factors were found to be statistically different between the two groups, as seen in figure 2. Head injuries were not significant in the development of pressure sores ($p>0.05$, CI: -0.34 - 0.34); 42% of both patients with pressure sores (n=5) and those without (n=30) had head injuries.

A Chi-Squared test of independence showed a significant relationship between guideline adherence and pressure sore development. $\chi^2(1, N = 84) = 7.89$, $p = 0.019$.

Of patients that did not develop pressure sores, 5.8% did not adhere to the guidelines, compared to 33.3% in those who did (see Figure 3).
Occipital pressure sores formed the majority of sores developed in spinal patients in the ICU (35.3%). Statistical analysis showed a significant association ($p<0.05$) between occipital pressure sores in spinal patients and the overall ICU pressure sore population. Notably, spinal patients made up 60% of all Grade 2 or higher occipital pressure sores.

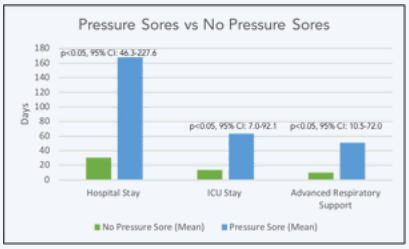

Figure 2: Comparison between pressure sore and non pressure sore patients

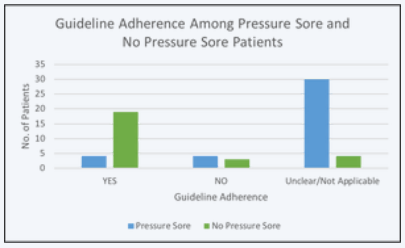

Figure 3:Manual Handling Guideline adherence among pressure sore and non pressure sore spinal patients

CONCLUSION

The findings of this audit are consistent with that of the original; spinal patients in ICU have an increased risk of developing pressure sores, especially due to the significantly longer periods of time spent in hospital and in ICU.

Implementation of the new manual handling protocols did see a reduction in pressure sore occurrence from 15.5% to 14.3% suggesting improved patient outcomes and compliance. A limitation, however, was that 30 patients either did not require spinal precautions or documentation was insufficient to determine whether guidelines were properly implemented. Also, as the majority were occipital sores, further studies or updates to collar care protocols and prevention strategies may be warranted.

References

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A Re-audit of Pressure Sores in ICU Spinal Patients Following New Manual Handling Guidelines

Abstract

Authors
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Background: Spinal patients admitted to the intensive care unit (ICU) are often at an increased risk of developing pressure sores due to the prolonged periods of immobilisation. An initial audit in 2022 found that 15.5% of spinal ICU patients had developed pressure sores, however manual handling guidelines at the time were varied. Since then, there has been implementation of new guidelines. This study aims to assess the impact these changes have made on pressure sore incidence.

Methods: An NHS mandated DATIX database was produced that detailed all reported ICU pressure sores between January 2023 and December 2024. Patient notes and discharge summaries were used to highlight those with any reported spinal injury or pathology. Any grade 2 or above pressure sores, or those over bony prominences were included. A separate database was then produced that included all ICU patients with any spinal injury or pathology in the same time frame, regardless if they had developed pressure sores. Information including age on admission, days in hospital, ICU, on advanced respiratory support, head injuries and adherence to manual handling guidelines, was collected. Finally, a statistical analysis was performed.

Results: There were 91 ICU spinal patients admitted from 01/01/2023-31/12/2024, of which 2 were excluded as they were misreported and 4 others due to still being in hospital at the time of this study. Therefore, a total of 84 spinal patients were included. 12 developed one or more pressure sores (14.3%). 35.3% were occipital pressure sores (n=6), 23.5% were sacral (n=4), 23.5% were heel (n=4) and 5.9% were collar/lower neck (n=1). There was a statistically significant difference between those who developed pressure and those who did not in time spent in hospital, ICU and on advanced respiratory support ($p<0.05$). However, no statistical difference was found in mean age on admission ($p>0.05$, 95% CI:-5.3-17.5). Head injuries were also not significant in the development of pressure sores ($p>0.05$, CI: -0.34 - 0.34). Adherence to new manual handling guidelines was also found to have a significant difference between the two groups $\chi 2(1, N = 84) = 7.89$, $p = 0.019$. Of patients that did not develop pressure sores, 5.8% did not adhere to the guidelines, compared to 33.3% in those who did. A limitation, however, was that 30 patients either did not require spinal precautions or documentation was insufficient to determine whether guidelines were appropriately implemented.

Conclusion: The findings of this audit are consistent with that of the previous; spinal patients in ICU do have an increased risk of developing pressure sores, especially due to the significantly longer periods of time spent in hospital and ICU. Implementation of the new manual handling protocols did see a reduction in pressure sore occurrence from 15.5% to 14.3% suggesting improved patient outcomes and compliance. However, as the majority of pressure sores developed were occipital, further studies and updates to collar protocols and prevention strategies may be warranted.

I declare that this work is entirely my own and no part of it has been produced by Generative AI tools.