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Introduction

Prone positioning is commonly used when treating ventilated Covid-19 patients. Despite guidance from the Faculty of Intensive Care Medicine on the care of the prone patient, cases of peripheral neuropathies following ICU admission significantly increased during the Covid-19 pandemic at our centre (Miller et al. 2021). Nerve injury results in reduced quality of life, impaired activity participation and persistent pain (Bailey et al. 2009).

Objective

The aim of this quality improvement project was to identify the effect that new guideline development and related healthcare professional education had on the number and severity of peripheral neuropathies identified following Covid-19 ICU admission.

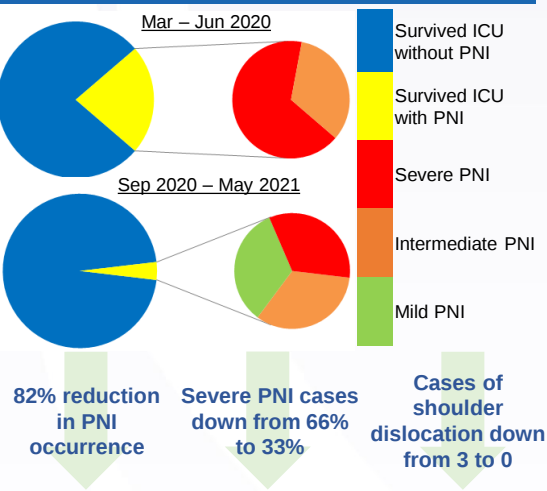
Methods

Data Collection
When: Between March 2020 and May 2021.
What: Clinical data from patients who sustained peripheral neuropathies during their inpatient stay for Covid-19.
Where: ICU, post-ICU rehabilitation wards & outpatient clinics.
How: Identification of peripheral nerve injuries and categorisation into severe, intermediate and mild (Power et al. 2020).
Electronic noting was examined to identify the frequency /duration of each proning episode for each patient who presented with nerve injury.

Intervention
Following the first surge in 2020 updated local proning guidelines (Fig. 1) were developed with ICU team leaders and disseminated to the ICU team. This involved face-to-face education of frontline staff.

Fig. 1 Head and Neck	Make sure head is turned towards the flexed arm
	Neck is not overly rotated
	Neck is not overly side flexed (keep the neck in a straight alignment)
	Neck is not overly extended (not tilted back too far)
Shoulder Girdle	“Shrug” the shoulder girdle to offload the brachial plexus (avoid stretch on the muscle between the shoulder and neck)
	Shoulder joint is forward flexed (not extended) – support at chest
Shoulder and elbow (flexed arm)	Shoulder joint is abducted to less than 90 degrees, ideally less than 45 degrees
	Elbow is flexed less than 90 degrees, ideally less than 45 degrees
Knees	Support legs to avoid prolonged periods of loaded extension/hyperextension at the knees
Compression	Minimise direct compression at medial elbow and medial upper arm
Arm and head cycling	Cycle arms and head every 2-4 hours Do not cycle the arms if unable to perform head turn

Results



Surge Period	Mar- Jun 2020	Sep2020 - May 2021
No of Covid ICU survivors	93	309
No of Covid ICU survivors who sustained nerve injury	21 (22.58%)	12 (3.88%)
Average Prones	6	13
Average prone duration	17.8hrs	18.6hrs

Conclusion

Optimising positioning of the prone ventilated patient may reduce the incidence of nerve injury. Further research looking at risk factors and further methods of optimising prone positioning on ICU is warranted.

References

Miller C, O’Sullivan J and Jeffrey J, et al. Brachial plexus neuropathies during the COVID-19 pandemic: a retrospective case series of 15 patients in critical care. *Phys Ther* 2021; 101 (1); pzaa191.
Bailey R, Kaskutas V and Fox I, et al. Effect of upper extremity nerve damage on activity participation, pain, depression, and quality of life. *J Hand Surg Am* 2009; 34(9); 1682-1688.
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