The Iceberg Effect: The hidden morbidity of burn injuries in patients with sensorimotor deficits

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Introduction

Paediatric burns patients with sensorimotor deficits (SMD) present additional complex challenges in the coordination of their care.

Anecdotally, burns in children with SMD are more prevalent, complex and resource intensive, however minimal data of the incidence and sequelae has been collected.

The improved understanding of burn injuries in this high-risk group could provide a foundation for a more tailored approach to their management

Methodology

A 15 year (xxx-xxx) retrospective analysis of all paediatric burn patients <16 years of age in the NSW ACI database.

Those with cerebral palsy, trisomy 21, spina bifida, global developmental delay, and neural-sensorimotor deficits resulting from trauma, were identified and analysed against a control population.

The outcomes measured included total body surface area (TBSA), mechanism, length of stay (LOS), graft and re-graft rates, wound infection, return to theatre, ICU/ventilation requirements, and outpatient follow-up.

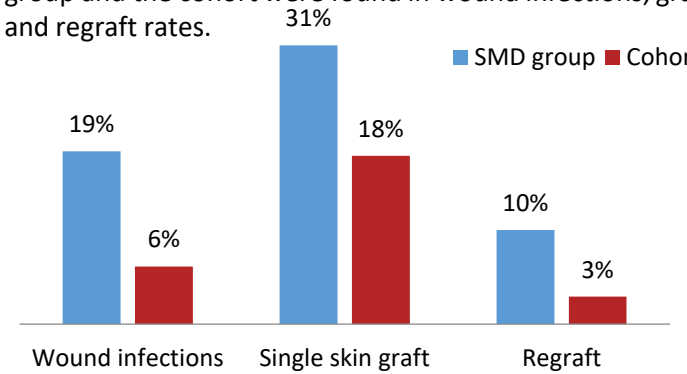
Results

A total of 12992 burn injuries were identified. 95 met the criteria for inclusion in the study group

There was a statistically significant difference found in the all of the following parameters:

	SMD Group (n 95)	Cohort (n 12897)
Age	6.9 (±4.1)	4.9 (±4.1)
Gender	73.6 % male	58.5% male
TBSA %	4.7 (±10.3)	2.5% (±3.9)
At least 1 night admission	48.4%	19.6%
LOS	9.9 (±14.0)	5.5 (±9.9)
ICU	4.2%	0.9%
Intubation	2.1%	0.1%

However the most significant differences between the SMD group and the cohort were found in wound infections, graft and regraft rates.



Discussion

SMD patients formed the minority of the cohort however are over-represented in regards to complexity and complications.

Previous studies have similarly noted age to be a significant factor for burn injuries, postulated to relate to the delayed acquisition and development of motor skills in these patients. However unlike previous work, we have found significant differences in further parameters.

Unlike other studies the SMD cohort was 3.4 times more likely to develop a wound infection than the control group. Reducing infection rates may reduce morbidity in this group. Further correlation with burn wound site and number of dressing changes is required

Conclusion

Children with sensorimotor deficits have a higher TBSA, are at greater risk of complications, and experience prolonged and more complex admissions when compared to their non-disabled peers.

Future research into improving care and targeted prevention strategies is required for this resource rich, high-risk group.