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Activity Based Restorative Therapy (ABRT) and the risk of developing Medical Device Related Pressure Injuries in pediatric patients with Spinal Cord Injury: A Case Report

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PURPOSE

- To explore the causes associated with Medical Device Related Pressure Injury (MDRPI) within the pediatric spinal cord injury (SCI) population.

BACKGROUND

- As defined by the National Pressure Ulcer Advisory Panel (NPUAP), MDRPI is “localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear.”¹
- For patients with SCI, limited dexterity, mobility, and volitional motor control put them at greater risk for developing MDRPI.

METHODS

- Design:** Retrospective review of charts from January 1, 2019 and October 30, 2020, at specialized outpatient SCI rehabilitation center in Baltimore, Maryland.
- Study Population:** Patients with spinal cord injury who are 18 or younger.
- Outcomes:** (1) history of MDRPI or develop MDRPI while participating in therapy (2) no MDRPI
- Data collected:** (1) Age at initial evaluation (2) International Standards for Neurological Classification of SCI (ISNCSCI) (3) Neurological Level of Injury (4) Gender (5) Ambulatory status (6) mechanism of injury (traumatic, nontraumatic) (7) Spinal Cord Independence Measure III (SCIM-III) (8) Body Mass Index (BMI) (9) Braden Score

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OUTCOMES

- Lack of sensation, lower SCIM-III scores, and lower Braden scores were associated with increased likelihood of having a MDRPI (p<.05).
- Traumatic injury trend toward being associated with never having had a MDRPI (p<.07).

DISCUSSION

- Although MDRPI may not appear serious, initially, if not addressed immediately, they could develop into a larger wound and need significant amount of time to heal
- As demonstrated by these cases, pediatric patients with spinal cord injury participated in ABRT are at high risk for MDRPI due to decreased sensation, more regular use of wheelchairs and/or orthotics to assist with mobility, and massed practice therapy interventions.
- Policies were reviewed, and modifications were made to decrease risk of re-occurrence. Staff in-services were held to educate staff members on proper use of equipment, promote regular skin checks, and create wear schedules to build up tolerance to devices such as orthotics

CITATIONS

- National Pressure Ulcer Advisory Panel. *Best Practices for Prevention of Medical Device-Related Pressure Injuries*. Updated May 2017.
- Kayser SA, VanGilder CA, Ayello EA, Lachenbruch C. Prevalence and analysis of medical device-related pressure injuries: Results from the International Pressure Ulcer Prevalence Study. *Adv Skin Wound Care*. 2018;31(6):276-85.

Total (n=58)		Wounds ever (n=33)	Wounds never (n=25)
Age (average years)		11.97	12.14
Neurological Level of Injury (%)	T9-above	60.60	64.0
	T10-below	39.40	52.0
International Standards for Neurological Classification of Spinal Cord Injury (%)	A/B	60.60	52.0
	C/D/E	39.40	64.0