

Increased Odds of Non-Accidental Traumatic Fractures in Pediatric Patients with Intellectual Disability Disorder: A Stratified Analysis

Mehul Manoj Mittal, David A Momtaz, Rishi Gonuguntla, Dhyan Dave, Pooya Hosseinzadeh¹

¹Washington Univeristy Orthopedic Surgery

INTRODUCTION:

Pediatric patients with an intellectual disability disorder (IDD) are known to be at a higher risk of experiencing child abuse. In this study, we aim to determine the odds of a pediatric patient experiencing a non-accidental traumatic fracture (NATF) and stratify this by degree of intellectual disability when compared to accidental traumatic fractures (ATF).

METHODS: A large, nationally representative sample of 15,802,711 children was identified, with 16,441 of those patients sustaining NATF and 15,786,270 sustaining an ATF between January 1, 2003 to December 31, 2022. Of these patients, 260 of the NATF patients had some degree of IDD, and 3,450 of the ATF patients had some degree of IDD. Patients were then stratified by degree of IDD. Retrospective cohort analysis was performed to determine odds ratios of patients in each category to sustain an NATF compared to an ATF.

RESULTS: When comparing patients with profound intellectual disability to those without intellectual disability, patients had a 184.28 times greater odds of sustaining a NATF ($p < 0.0001$), patients with severe intellectual disability had a 145.523 times greater odds of sustaining a NATF ($p < 0.0001$), patients with moderate intellectual disability had a 36.34 times greater odds of sustaining a NATF ($p < 0.0001$), and patients with a mild intellectual disability had a 35.32 times greater odds of sustaining a NATF ($p < 0.0001$) (see Figure 1).

DISCUSSION AND CONCLUSION: Patients with increasingly severe intellectual disability had increasing odds to sustain an NATV relative to patients without intellectual disability. It is critical that physicians are aware of this relationship to identify patients that may be at increased risk of experiencing abuse.

Variable	NATF	Non-NATF	P
	Mean or N	Mean or N	
Age	1.92 ± 2.05	1.78 ± 2.01	0.000
Male	9,214	8,376,955	0.000
Female	7,227	7,409,315	0.000
Hispanic or Latino	2,984	2,159,986	0.000
Not Hispanic or Latino	11,277	6,636,317	(0.000)
White	8,147	6,208,005	-
Black or African American	4,318	2,023,283	(0.000)
American Indian or Alaska Native	129	64,127	(0.000)
Asian	175	398,399	0.000
Native Hawaiian or Other Pacific Islander	25	37,209	0.000
Diagnoses	Patients	Patients	
Unspecified intellectual disabilities	163	1,829	(0.000)
Mild intellectual disabilities	36	940	(0.000)
Severe intellectual disabilities	24	152	0.000
Profound intellectual disabilities	20	100	0.000
Moderate intellectual disabilities	17	431	0.000

Figure 1: NATF vs. Non-NATF by Intellectual Disabilities and Demographic Characteristics