Relationship Between Child Growth Metrics and Maltreatment: A Retrospective Chart Review.

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Introduction/Background

Following the publication of the landmark adverse childhood experience studies, a growing body of literature has established relationships between childhood trauma, including child maltreatment, and the development of a litany of adult diseases such as obesity, diabetes, and cardiovascular disease. However, much of the available literature is built on findings in adults, years removed from the time of abuse, and to our knowledge, no studies have sought to characterize growth metrics of abused children at or near the time of the abuse. Additionally, no studies have sought this characterization at the point of encounter with a Child Advocacy Center—a clinical setting specially designated for the evaluation of abused children.

Problem Statement

Our project sought to characterize growth metrics (length, weight, BMI) of children evaluated for maltreatment at the Child Advocacy Center at the point of initial presentation and to further describe those metrics based on the particular category of maltreatment.

Methodology

In compliance with human subject research requirements, our protocol was submitted to the hospital’s institutional review board for expedited review. Following approval, we conducted a retrospective chart review of all unique patient encounters at the Child Advocacy Center from October 1, 2015 to August 31, 2016 through the hospital EMR system. Patients were included if they were less than 18 years of age and if they carried a diagnosis of physical abuse, sexual abuse, neglect, psychological abuse, or exposure to intimate partner violence (IPV). Exclusion criteria included an active diagnosis of neonatal abstinence syndrome, or documented diagnoses of chronic medical conditions affecting growth and development, such as metabolic or malabsorptive disorders. Extracted data included age in months, the maltreatment diagnosis, and z-scores for the following growth metrics as obtained from CDC growth charts: length, weight, and BMI.

Results

A total of 225 patient charts met our study criteria, which included 82 males (36.4%) and 143 females (63.6%). 86 (38.1%) carried a diagnosis of physical abuse, 67 (29.8%) carried a diagnosis of sexual abuse, 49 (21.8%) carried a diagnosis of neglect, 24 (10.7%) carried a diagnosis of psychological abuse, and 95 (41.8%) patients had more than one maltreatment diagnosis. Figure 1 demonstrates the average z-score and standard deviation (SD) for each growth metric for each maltreatment category. Further analysis of the sexual abuse category revealed that 28 patients carried a diagnosis of sexual abuse only; among these patients the average z-score for BMI was 0.80 (SD = 1.29). This suggests a higher rate of overweight BMIs (BMI z-score > 1) among victims of sexual abuse; however, the sample size did not achieve sufficient statistical power for further analysis.

Conclusions and Future Implications

Our study establishes growth metrics for children evaluated for maltreatment at an outpatient Child Advocacy Center setting. These metrics suggest a possible relationship between overweight patients and the prevalence of sexual abuse at the time of initial presentation to medical care. Further study with larger sample size is needed to assess for statistical significance. Should such a relationship exist, this would suggest an early-onset physical sequela of child maltreatment.