Predicting the Transition From Acute Stress Disorder to Posttraumatic Stress Disorder in Children With Severe Injuries

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ABSTRACT

Introduction: The purpose of this study was to examine predictors of risk for and the transition between acute stress disorder (ASD) and posttraumatic stress disorder (PTSD) in a longitudinal sample of youth with severe injuries admitted to the hospital. These data would assist with treatment and discharge planning.

Methods: Youth were assessed for ASD during the initial hospital stay and were followed-up over an 18-month period for PTSD ($n = 151$). Youth were classified into four groups, including Resilient (ASD−, PTSD−), ASD Only (ASD+, PTSD−), PTSD Only (ASD−, PTSD+), and Chronic (ASD+, PTSD+). Demographic, psychiatric, social context, and injury-related factors were examined as predictors of diagnostic transition.

Results: The results of multivariate analysis of variance and pairwise comparisons found that peritraumatic dissociation, gender, and socioeconomic status were significant predictors after controlling for multiple testing.

Discussion: Results suggest that both within-child and contextual factors contribute to the longitudinal response to trauma in children. Clinicians should consider early screening and discharge planning, particularly for children most at risk. J Pediatr Health Care. (2016) ■, ■-■.

KEY WORDS

Trauma, acute stress disorder, posttraumatic stress disorder, longitudinal

Injury severe enough to warrant hospitalization is common among youth. According to the Centers for

Disease Control and Prevention (CDC), in 2013 more than 300,00 youth aged 18 years or younger were injured severely enough to warrant hospitalization or transfer to a trauma center or medical facility (CDC, 2013). Posttraumatic stress disorder (PTSD) in youth surviving pediatric injury is common, and studies show prevalence as high as 19% to 40%, with higher rates observed in females (Holbrook, 2005; Zatzick, et al., 2006). A growing body of research has demonstrated that traumatic stress is associated with negative long-term outcomes affecting mental health (e.g., anxiety, depression, and PTSD) and physical health (e.g., hypertension, hyperlipidemia, obesity, and coronary heart disease; see McFarlane, 2010). In addition to connecting patients with services that address basic needs (e.g., housing and food) or follow-up medical care, hospital stays provide a critical opportunity to identify patients with mental health needs and connect them with follow-up mental health services that may reduce long-term negative health outcomes and risks for future hospital admissions (Gordon, 1999). Thus, in-hospital identification of traumatized youth at risk for long-term traumatic stress outcomes is an important part of discharge planning to help prevent some of the negative health consequences associated with traumatic injury.

Acute stress disorder (ASD) is an initial warning sign of risk for traumatic stress-related outcomes that is observable during the hospital stay. ASD involves many of the symptoms associated with PTSD (e.g., re-experiencing, avoidance, physiological arousal, and distress/impairment), as well as dissociative symptoms (e.g., numbing, reduced awareness, derealization, depersonalization, and amnesia; American Psychiatric Association, 1994). Predictors of ASD have included female gender and violent injury (Holbrook, 2005), as well as family stress, caregiver stress, pain severity, and the child's age (Saxe et al., 2005). However, studies have shown mixed support for the ability of ASD to predict PTSD or other traumatic stress-related outcomes (Bryant, Salmon, Sinclair, & Davidson, 2007; Kassam-Adams & Winston, 2004; Meiser-Stedman, Yule, Smith, Glucksman, & Dalgleish, 2005). Thus, more research is needed to better predict longer term outcomes such as PTSD, particularly from data available during hospitalization.

Prior research with injured patients has suggested that PTSD is associated with a number of pretrauma factors, many of which overlap with ASD, including female gender, age, minority status, preinjury psychological functioning, and a history of prior trauma exposure (for review, see Brosbe, Hoefling, & Faust, 2011). Studies have also found that PTSD is associated with injury-related factors, including greater perceived trauma severity and increased acute heart rate (Brosbe et al., 2011; De Young, Kenardy, & Spence, 2007; Holbrook, 2005; Kassam-Adams, Garcia-Espana, Fein, & Winston, 2005; Meiser-Stedman, 2007; Nugent, Christopher, & Delahanty, 2006). Researchers have also considered early predictors that may be modifiable; parent functioning, for example, has been found to predict child PTSD and to even moderate the influence of peritraumatic stress symptoms (Brosbe et al., 2011; Hall et al., 2006; Nugent, Ostrowski, Christopher, & Delahanty, 2007). Unfortunately, methods for combining risk factors associated with ASD and PTSD individually to predict long-term adjustment have remained largely unexplored.

The present investigation furthers this literature by classifying a sample of pediatric injury patients based on transition from ASD diagnostic status while hospitalized to PTSD diagnostic status over the course of an 18-month follow-up. We then examine the factors that predict transition from ASD to PTSD. Specifically, we aim to address two important questions in pediatric injury research. First, we sought to characterize the prevalence of pediatric injury patients who were categorized into one of four potential groups (Bonanno & Mancini, 2012; Norris, Tracy, & Galea, 2009), including those who (a) do not meet ASD or PTSD criteria (Resilient), (b) meet ASD criteria but do not meet PTSD criteria (ASD Only), (c) do not meet ASD criteria but do meet PTSD criteria (PTSD Only), and (d) meet both ASD and PTSD criteria (Chronic). Second, we conducted exploratory analyses to examine the wide range of predictors that have been previously associated with ASD or PTSD individually but have yet to be used to predict transition between these diagnostic categories.

We hypothesized that demographic (younger age and female sex), psychiatric (fewer peritraumatic dissociation symptoms, lower internalizing, and lower externalizing symptoms), social context (European-American ethnicity, lower family strain, lower maternal stress reaction, and higher socioeconomic status [SES]), and injury-related (lower pain, lower injury severity, and nonviolent injury type) variables would differentiate the Resilient transition status group from ASD Only, PTSD Only, and Chronic groups. We also hypothesized that the largest difference would be observed between the Resilient and Chronic groups, with intermediate differences observed for the ASD Only and PTSD Only groups. Identifying the factors that influence the transition from ASD to PTSD may help care providers identify injured youth at risk for long-term distress, ideally before hospital discharge while the youth and family are still connected to services.

METHODS
Participants
Participants were 151 youth ages 7 to 18 years and their parents drawn from a sample of 204 youth who were sequentially admitted to Shriner's Burn Hospital in Boston and Boston Medical Center for burns and