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Predictors of violence following Emergency Department visit for cocaine-related chest pain

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Abstract

This study examined 1-year violence outcomes among non-injured patients treated in the Emergency Department (ED) for cocaine-related chest pain. An urban Level I ED required patients with chest pain (age 60 and younger) provide a urine sample for cocaine testing. Cocaine-positive consenting patients ($n = 219$) were interviewed in the ED; 80% completed follow-up interviews over 12-months ($n = 174$; 59% male, 79% African-American, mean age = 38.8, standard deviation 9.06; range = 19–60). Baseline rates of past year violent victimization and perpetration history were: 38% and 30%, respectively. During the 12-month follow-up, rates of victimization and perpetration outcomes were 35% and 30%, respectively. Predictors of violence outcomes (either victimization or perpetration) in the year post-ED visit based on characteristics were measured at baseline or during the follow-up period (i.e., gender, age, psychological distress, binge drinking days, cocaine use days, marijuana use days, substance abuse/dependence diagnosis, victimization/perpetration history). Victimization during the follow-up was related to younger age, more frequent binge drinking and marijuana use at baseline, and victimization history, and to substance abuse/dependence, more frequent binge drinking, and psychiatric distress at follow-up. Specifically, participants who reported victimization at baseline were approximately 3 times more likely to report victimization at 12-month follow-up. Perpetration during the follow-up was related to younger age and more frequent binge drinking at baseline, and to substance abuse/dependence, more frequent binge drinking, and psychiatric distress at follow-up. Overall, no significant gender differences were observed in violence; however, women were more likely than men to report injury during the most severe partner violence incident. Violence is a common problem among patients presenting to an inner-city ED for cocaine-related chest pain, with younger age and frequency of binge drinking being a consistent marker of continued violence involvement. Intervention approaches to link these not-in-treatment cocaine users to services and reduce cocaine use must take into account concomitant alcohol misuse and violence.

Keywords: Violence; Cocaine; Chest pain; Emergency Department

1. Introduction

Morbidity and mortality in cocaine positive Emergency Department (ED) patients is most commonly due to violence-related injury, as opposed to other medical conditions resulting from their cocaine use. For example, in a large sample of cocaine positive ED patients, 23.9% of chief complaints were related to violent trauma (Mullen et al., 2001) and an autopsy study found the most common cause of death among cocaine positive patients was violent injury (37.5%) (Tardiff, 1988). Despite recommendations to ask all patients about drug and alcohol use, few EDs' assess patients for illicit drug use if it does not relate to their direct acute care (D'Onofrio and Degutis, 2002; Lowenstein et al., 1990). An exception to this practice occurs with patients who present to the ED seeking care for chest pain. Because the medical management of cocaine related chest pain differs from that for non-cocaine related chest pain, standard of care

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in some urban EDs entails urine drug testing for cocaine use and observation in the ED or extended observation units for 8–12 h (Weber et al., 2000). Chest pain is a common presenting medical complaint among cocaine users in inner-city EDs (Minor et al., 1991; Rich and Singer, 1991), with up to 25% of chest pain patients having positive urine drug screens for cocaine (Booth et al., 2005; Hollander et al., 1995; Qureshi et al., 2001). These patients, with documented cocaine use and extended ED stay for chest pain, provide an opportunity to examine violence issues, both history prior to ED visit, and longitudinal outcomes post-discharge. Findings from natural history studies of these cocaine-positive ED patients provide data that could be used in future brief interventions to link these patients to needed services.

Surprisingly, with a notable exception (Cunningham et al., 2007), few studies have examined violence issues, including victimization and perpetration in partner and non-partner relationships, among cocaine-positive patients in the ED. Cross-sectional research shows that rates of violence vary based on population: one-sixth from community surveys (Field and Caetano, 2005; Straus and Gelles, 1990); one-third among community samples of cocaine users (Falck et al., 2001; Siegal et al., 2000); between one-third and one-half among injured or cocaine-positive chest pain patients in the ED (Cunningham et al., 2003, 2007; Walton et al., 2007); and two-thirds among substance use treatment samples (Chermack et al., 2001; Fals-Stewart et al., 2002; Walton et al., 2002). To our knowledge no longitudinal studies have been published examining violence post-discharge among any medical or injured ED patients.

Theoretically, the relationship between substance use (including both cocaine and alcohol use) and violence is a function of acute intoxication effects (e.g., disinhibition), social/contextual factors (e.g., inner-city high crime environments), and individual difference factors (e.g., gender, psychiatric comorbidity) (Chermack and Giancola, 1997; Goldstein, 1985). For example, substances may be used to cope with depression, anxiety, and/or post-traumatic stress disorder resulting from experiencing violence, which is inherent to inner-cities (Rich and Grey, 2005). Alternatively, violence perpetration may be viewed as an effective strategy to prevent further victimization via the notion of the "code of the street" and avoidance of being labeled a "sucker" (Rich and Stone, 1996; Rich and Sullivan, 2001). A variety of studies have documented the relationship between substance use and violence including studies from laboratory (Chermack and Giancola, 1997; Hoaken and Stewart, 2003; Licata et al., 1993), substance use treatment (Brown et al., 1999; Chermack et al., 2001; O'Farrell et al., 1999; Straus and Gelles, 1990), domestic violence (Abbott et al., 1995; Melnick et al., 2002), and community survey (Cunradi et al., 1999) settings. More specifically, prior cross-sectional ED research has found that patients presenting with violent injuries report greater substance use and substance related consequences than patients presenting with unintentional injuries (Cherpitel, 1997; Macdonald et al., 1999). Among injured patients, alcohol users were two times more likely, and illicit drug users were six times more likely to report past year violence than non-users/drinkers (Cunningham et al., 2003). Finally, a prior paper from this data set found that patients who reported more frequent binge drinking, marijuana use, and who met diagnostic criteria for substance use/dependence were more likely to report past year violence (Cunningham et al., 2007).

Longitudinal studies examining violence among substance users are non-existent among ED samples and are limited among substance use treatment samples (O'Farrell and Murphy, 1995; O'Farrell et al., 2004; Walton et al., 2002). Longitudinal studies of partner violence among alcohol treatment samples show that violence decreases post-treatment were mediated by reductions in problem drinking (O'Farrell and Murphy, 1995; O'Farrell et al., 2004). These studies have limited generalizability to ED studies of cocaine users because inclusion is restricted to men with a partner willing to participate in Behavioral Couples Therapy, and no information is collected regarding violence with non-partners. Another substance use treatment study examining partner and non-partner violence over a 2-year period following substance use treatment found that victimization and perpetration were related to alcohol and marijuana use; cocaine use was related to victimization, but not perpetration (Walton et al., 2002).

Longitudinal ED studies are needed to examine rates and markers of violence (including both victimization and perpetration) over time, which may be particularly relevant for cocaine positive patients. Hypotheses were that baseline violence history (victimization and perpetration) would be related to violence during the 12-month follow-up period. Further, hypothesized baseline predictors of violence victimization and perpetration during the 12-month follow-up were younger age; more frequent binge drinking, cocaine use, and marijuana use; psychological distress; and substance abuse/dependence diagnosis. Based on our prior findings regarding the relationship between gender and violence in general ED samples (Cunningham et al., 2003, 2007; Walton et al., 2007), gender was not expected to be significantly related to violence. However, when examining the most severe incident of violence, it was expected that women would be more likely than men to report injury. Findings will help fill an important gap in the literature regarding violence outcomes among ED patients presenting with a common complication of cocaine use, chest pain, in order to inform interventions to address this population.

2. Method

2.1. Study design and setting

This natural history study used a consecutive cohort design of non-injured patients presenting to an inner-city ED Chest Pain Observation Unit (CPOU) (Hurley Medical Center in Flint, Michigan) with chest pain and recent cocaine use. The study was approved by the investigators' Institutional Review Boards at the affiliated university and local hospital. This study was conducted at a Level I Trauma Center ED with a census of approximately 75,000 patients per year (see (Booth et al., 2005) for detailed information regarding methods). The standard of care in the study ED CPOU required that patients under age 60 undergo urine toxicologic screening for cocaine metabolites (Synchron® LX Systems, Fullerton, CA; 95% sensitivity, 100% specificity) (Tietz, 1996), as the treatment for cocaine related chest pain differs from other cardiac disease. A detailed description of the CPOU protocol has been published previously, with the standard of care requiring at least a 9 h observation period (Gibler et al., 1995).