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Does Opiate Use in Traumatically Injured Individuals Worsen Pain and Psychological Outcomes?

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Abstract: Opiate use for chronic pain is becoming increasingly controversial. There has been a shift away from supporting the use of opiates for treatment of chronic pain. In addition to lack of effectiveness, concerns for adverse clinical outcomes, addiction, and death have provided the impetus for this change. The purpose of this study was to investigate the percent of trauma patients still using opiates, their pain levels, and psychological outcomes 4 months posttrauma. This was a study to evaluate chronic pain at 4 months posttrauma in 101 participants from a single level 1 trauma center. Eighty of the 101 participants developed chronic pain 4 months after their initial traumatic injury (79%). Of those who developed chronic pain, 27 (26%) were still using opiates. Those using narcotics at 4 months posttrauma had significantly more pain, life interference, depression, and anxiety. Posttraumatic stress disorder (PTSD) was not significantly influenced by narcotic use in this analysis. However, the mean associated with those using narcotics was higher and diagnostic for PTSD. Those taking opiates did not have significantly better relief from their pain using treatments or medications than those not using opiates (F = 8, *P* = .08). These findings bring into question the appropriate use of opiates for chronic pain and the possible exacerbating effects on pain and psychopathology in traumatically injured patients.

***Perspective:** This article identifies data that provide evidence that narcotic pain medication needs to be used carefully in traumatically injured patients with chronic pain, especially in those individuals with comorbid psychological pathology.*

***Key words:** Chronic pain, narcotic use, pain outcomes.*

Opiate use for chronic pain is becoming increasingly controversial. Early case series found that long-term use of opioids can be effective and safe.[18,34] However, these studies had low subject numbers that provided no generalizability for adequate guideline support. Subsequent evaluation of long-term opioid therapy recommendations by the American Pain Society and American Academy of Pain Medicine were based upon low-quality evidence.[9] Due to lack of evidence that opioids adequately treat chronic pain, there has been a shift away from supporting the use of opiates for treatment of chronic pain.[3,21] Eriksen et al[16] found that opioid use in a large national population in Denmark did not seem to fulfill any of the key outcome opioid treatment goals of pain relief, improved quality of life, or improved functional capacity. Noble et al[30] completed a meta-analysis of case series and 1 uncontrolled study with a pooled dropout rate greater than 20% due to adverse effects which found weak significant pain relief but inconclusive information about quality of life and functional status. A larger systematic review of randomized controlled trials on opioid use in chronic noncancer pain found inconsistent functioning and quality of life without firm conclusions about tolerance and addiction with adverse effects of opioids in 80% of study participants.[26] In addition to lack of effectiveness, concerns for adverse clinical outcomes, addiction, and death have provided the impetus for this controversy.

Psychological functioning has been known to worsen with opioid use.[17,23,29,35,37,38,41,44,47] A new and highly publicized study on veterans identified increased opioid use for pain in those veterans with comorbid psychological disorders, especially posttraumatic stress disorder (PTSD), and put them at risk for adverse clinical outcomes such as drug, alcohol, and opioid-related accidents; overdose; and self-inflicted injuries.[39]

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The Centers for Disease Control and Prevention (CDC)-reported fatal overdoses involving opioid analgesics have sharply increased over the last decade, coinciding with the increase in opioid-prescribing practices.[32] Prescribers must understand that psychological morbidity increases the risks associated with opiate use. Because chronic pain is highly correlated with anxiety, depression, and PTSD,[13,20] use of opiates in chronic pain must be reevaluated.

In traumatically injured individuals, there is a high potential for the development of chronic pain secondary to physical injuries. The prevalence of chronic pain after a traumatic injury has been reported as low as 8 to 10%[43,50] and as high as 44 to 64%.[10,24,36] Jenewein et al[24] reported a 44% incidence of chronic pain 3 years after motor vehicle crashes and significantly more symptoms of PTSD, depression, and anxiety in individuals who developed chronic pain after the motor vehicle accidents. It is well known that chronic pain is associated with psychopathology.[1,2,6,10,15,24,28,33,48,49] Frequently, trauma patients use opiates for treatment of pain associated with their traumatic injury and they are often at risk for psychological disorders related to their trauma experience.[12,51] However, it is unclear what percent of trauma patients is still using opiates 4 months after injury and if pain and psychological outcomes are better or worse than in those not using opiates.

Hypothesis

The purpose of this study was to investigate the percent of trauma patients still using opiates, their pain levels, and psychological outcomes 4 months posttrauma. It is hypothesized, based upon past and current research, that those who have chronic pain 4 months after a traumatic injury and use opiates long-term can expect to have more pain, anxiety, depression, PTSD, and life interference than those who do not use opiates. The results of this study can add to the literature by highlighting the pain and psychosocial outcomes of chronic opiate use in a traumatically injured population.

Methods

This was a nonexperimental prospective descriptive study to evaluate chronic pain at 4 months posttrauma in 101 participants. Those with chronic pain were studied in order to identify pain and psychological outcomes associated with the use opiate medications.

Participants and Procedure

Participants were recruited after admission to the trauma surgery inpatient service of a 500-bed midwestern level 1 trauma center. All adult patients admitted between May 2010 and November 2010 were evaluated to determine their eligibility for this study. Inclusion criteria were admission to the hospital following a traumatic injury for at least 48 hours and those who were physiologically stable enough to participate in a 15-minute interview. The trauma registry was accessed via the registrar to identify all potential participants. Daily admission records were reviewed for new hospital admissions for potential study participants. Exclusion criteria were admission for less than 48 hours, a Glasgow Coma Score of less than 15 by 48 hours after admission, age less than 18 years, and preexisting diagnosed chronic pain and/or opioid use that was present at the time of the interview. The participants were volunteers and no incentives for participation were provided except immediate feedback on scores of anxiety, depression, PTSD, and substance abuse risk (details of the measures are listed below). Of those screened, 235 met eligibility criteria, and 225 agreed to participate (95% participation). Of the 225 participants who completed the initial interview, only 101 responded to the 4-month follow-up interview, resulting in a 55% attrition rate.

Each potential participant was approached by the researcher (C.M.T.) in the hospital and invited to participate in a study of people who had experienced a traumatic injury, and consent was obtained. Submission of this proposal was sent to the institutional review boards of the University of Wisconsin-Milwaukee and the Medical College of Wisconsin. The proposals were approved as minimal risk expedited reviews and data collection started on May 5, 2010.

Measures

The initial interview was completed in the hospital room of the participants during their hospital stay for their traumatic injury. Follow-up contact was initiated approximately 1 week prior to 4 months from the initial interview. The participant was contacted first by phone and if not reached, by mail. Six instruments were used in order to obtain the study information (Table 1). These included the Initial Hospitalization Questions (demographic and pain data), the 4 Months Posttrauma Questions (demographic and pain presence data), the Hospital Anxiety and Depression Scale (HADS), the Alcohol Use Disorders Identification Test (alcohol use consumption questions) (AUDIT-C), the PTSD Checklist Civilian (PCL-C), and the Brief Pain Inventory Short Form (BPI-SF). The HADS, AUDIT C, PCL-C, and BPI were very reliable in measuring their respective attributes using Cronbach's alpha reliability coefficients. All data collection was obtained by 1 researcher (C.M.T.). Chronic pain was defined as pain persisting for more than 3 months.[46] Therefore, those reporting pain 4 months posttrauma were identified as reporting chronic pain.

Pain Measurement

Initial acute pain intensity was measured using the numeric pain scale (NPS). This is a commonly used measure of pain in the hospitalized patient. These are ratio measurements where there is a definite zero point or absence of pain. The NPS has been found to be both valid and reliable in acute pain measurement.[4,14,19,25]

Demographic Data Form

The first 2 instruments are a compilation of demographic questions and direct questions about the