

Impact of Family History of Substance Abuse on Admission Opioid Dose, Depressive Symptoms, and Pain Catastrophizing in Patients with Chronic Pain

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■ ABSTRACT:

The objectives of this study were to examine association between a family history of substance abuse and admission morphine equivalent dose, depression and pain catastrophizing screening scores, as well as reported personal history of substance use. The retrospective research was completed in an interdisciplinary three-week pain rehabilitation center. The subject cohort included admissions from January through December 2014 with 351 datasets for family history of substance abuse and oral morphine equivalency and 341 for depression, pain catastrophizing and use of substances. Outcome measures included admission self-reported data on family history of substance abuse and past and current substance use, admission morphine equivalency dose, and scores on the Center for Epidemiologic Studies-Depression Scale and the Pain Catastrophizing Scale. One hundred forty-seven patients were using opioid medications on admission and those with a positive family history of substance abuse had an oral morphine equivalency ($M = 92.12$, $SD = 95.32$) compared to a negative history ($M = 80.34$, $SD = 64.86$); the difference was not statistically significant, $t(120.01) = .87$, $p = .39$. Patients with a positive family history reported higher levels of both depression, $t(327.40) = 3.15$, $p = .002$ and pain catastrophizing, $t(338) = 2.76$, $p = .01$. Those with a positive family history endorsed greater frequency of past alcohol use $\chi^2(1, N = 326) = 6.67$, $p = 0.1$ and marijuana use $\chi^2(1, N = 341) = 4.23$, $p = .04$ and past $\chi^2(1, N = 329) = 9.90$, $p = .002$ and current tobacco use

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$\chi^2(1, N = 327) = 8.81, p = .003$. **Use of family history of substance abuse information may help provide data for multimodal treatments of chronic non-cancer-pain. The findings from this study can be used to guide future research.**

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With chronic pain affecting approximately 100 million Americans (Institute of Medicine, 2011), more people suffer from chronic pain than diabetes, heart disease, and cancer combined (American Academy of Pain Medicine, 2016). Opioids are frequently used to treat chronic non-cancer pain (CNCP), but there is concern over the appropriateness of prescribing opioids for these conditions because of the limited evidence supporting their therapeutic benefit (Ballantyne & Mao, 2003; Chaparro et al., 2013; Manchikanti et al., 2011; Noble, Tregear, Treadwell, & Schoelles, 2008). Furthermore, there have been increases in problematic opioid use, including aberrant use, dependence, and overdose deaths. A recent review of data from 38 studies found that rates of misuse of opioids in chronic pain average 21%-29%, and rates of addiction average 8%-12% (Vowles et al., 2015). A 2011 study of 705 adult patients receiving care in a health network in northeastern Pennsylvania and prescribed opioid medications for non-malignant pain four or more times in a 12-month period found the lifetime prevalence of opioid-use disorders to be 35% (Boscarino et al., 2011). In addition, numerous studies have investigated the increasing rate of deaths from opioid toxicity and overdose (Chou et al., 2015; Gwira Baumbblatt et al., 2014; Zedler et al., 2014). Opioids, including prescription opioids, heroin, and fentanyl, killed more than 33,000 people in the United States in 2015. Nearly half of these deaths involved a prescription opioid (Centers for Disease Control and Prevention, 2016).

A number of factors have been identified that determine patients who may be a risk for opioid-use disorders when opiates are prescribed, including a family history of substance abuse, which is the focus of this article. Heritability estimates of nicotine, alcohol, and drug dependence are in the range of 50% to 60% (Merikangas et al., 1998; Pickens et al., 2001). The Opioid Risk Tool, developed by Webster and Webster (2005), is widely used as a screening tool for potential opioid abuse in patients beginning opioid therapy for pain management. This tool identifies the following risk factors: current age between

16 and 45, family history of substance abuse; personal history of substance abuse; history of pre-adolescent sexual abuse; and psychological disease, including attention deficit disorder (ADD), obsessive-compulsive disorder (OCD), bipolar disorder, schizophrenia, and depression. A recent study by Meier et al. (2016), with a sample of 1,037 individuals from New Zealand followed prospectively from birth to 38 years (95% retention rate), concluded that the most significant factors for persistent substance dependence in adulthood were adolescent frequent tobacco and cannabis use, childhood conduct disorder, early exposure to substances, and family history of substance dependence. Additional articles published on opioid misuse have included family history of substance abuse as a predictor for problems with these medications (Kahan, Srivastava, Wilson, Gourlay, & Midmer, 2006; Michna et al., 2004; Skala et al., 2013; Turk, Swanson, & Gatchel, 2008). Furthermore, recently developed national guidelines recommend assessing family history as part of pre-treatment to prescribing opioids (Centers for Disease Control and Prevention, 2015).

Despite numerous recommendations, an informative family history assessment is frequently not utilized when prescribing opioid pain medication. A survey conducted by the Hazelden Betty Ford Foundation (2016) found that of individuals ($N = 1,028$) who were prescribed pain medications in the previous year, 46% reported that prescribers did not ask about their past personal or family history of substance use problems.

This article presents a study completed in a Chronic Pain Rehabilitation Center Program where systematic assessment for a family history of substance abuse is part of routine clinical care. In this study, substance abuse is defined as reported problems with alcohol, drugs, or prescription medications that caused health, relationship, job, or legal issues (Pestka et al., 2016). The objectives of the study were to examine association between a family history of substance abuse and morphine equivalency dose on admission to the program, depression (i.e., persistent feeling of sadness, and loss of interest in activities) (Radloff, 1977), and pain catastrophizing (i.e., a set of exaggerated and ruminating negative cognitions and emotions during actual or perceived painful stimulation) (Sullivan, Bishop, & Pivik, 1995) screening scores, and reported personal history of substance use. No research was found in the literature that has examined these associations in persons with CNCP conditions.

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