Opioid-related Adverse Effects for Concurrent Opioid and Stimulant Usage

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Introduction

Prescription opioid related overdose rates in the United States have been steadily increasing since 1997.1 While research has been conducted on prescription opioid usage, there is a significant lack of information regarding patient subgroups who take opioids in conjunction with other drugs, particularly Schedule II stimulants, and the effect on adverse events and overdose.1,2 We examined patterns of overdose and opioid related risk events among patients who were taking opioids and stimulants concurrently compared to patients taking only opioids to assess the trends and risk factors associated with these patient subgroups.

Methods

Multi-site outpatient practice and hospital retrospective electronic health record data from January 2013 to March 2018 for patients with an opioid medication between the ages of 18 and 90 were collected, merged, and deidentified for a total sample of 11,104 patients. Patients were grouped into three treatment groups: overlapping stimulant and opioid prescriptions, non-concurrent opioid and stimulant prescriptions within the time window, or only an opioid prescription. To determine the effect of concurrent stimulant and opioid use on opioid poisoning and abuse, defined by ICD-9 and ICD-10 codes, a logistic regression model using additional patient risk factors. These included socio-demographic variables, race, age, insurance, and ethnicity, diagnostic variables, such as ADHD and narcolepsy, heart disease, abnormal glucose, substance abuse, smoking status, and mental illness, and medications specific variables, such as long or short acting opioids and number of overlapping prescription days were included.3

Results

153 patients were taking opioids and stimulants concurrently, 227 were taking stimulants alone, and 10,885 were taking opioids alone. Of the concurrent prescriptions, 22% were taking buprenorphine with amphetamine and 17.6% were taking hydrocodone with amphetamine. 40% of patients prescribed both medications simultaneously had attention-deficit/hyperactivity disorder or narcolepsy and 25.5% of the patients had hypertension. 56% of the patients prescribed stimulants also had opioid use disorder. The logistic regression model showed an opioid risk event is less likely to occur if a patient is taking opioids and stimulants (OR:0.497 (0.03, 2.7)). However, this was non-significant. In addition, insurance, as a predictor of socio-economic status, age, history of alcohol abuse, and ethnicity were significant risk factors for opioid-related events.

Discussion

Further research is being done to assess the hypothesis that concurrent stimulant use reverses the respiratory depression that is typically associated with opioid overdose including looking at longitudinal modeling of long-term concurrent users versus short-term concurrent users and looking at the specific effects of amphetamines, dextroamphetamine, lisdexamfetamine, and methylphenidate.

References