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Heroin Overdose Hospitalization Risk due to Prescription Opioids using PDMP in WI.

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Objective

Using the Wisconsin Enhanced Opioid Surveillance System, the present study evaluates the heroin hospitalization risk among the opioid recipients using the Prescription Drug Monitoring Data (PDMP) with following specific objectives:

1. Evaluate the risk of heroin overdose hospitalization following the prescription of opioid.
2. Assess the time elapsed between last prescribed opioid and first heroin overdose hospitalization.
3. Identify the main predictors of heroin overdose hospitalization among prescribed opioid users.

Introduction

Nationally and in Wisconsin, heroin is the leading cause of opioid related death and hospitalization. Opioids are commonly prescribed for pain. Every day, over 1,000 people are treated in emergency departments for misusing prescription opioids[1]. In 2015, more than 15,000 people died from overdoses involving prescription opioids[1]. Approximately, three out of four heroin users report having abused prescription opioids prior to using heroin[2]. In Wisconsin from 2010 to 2014 the number of deaths involving any opioid increased by 51% and for heroin increased by 192%. Through the federal government funding and support Wisconsin has established a statewide tool to help combat the ongoing prescription drug abuse epidemic by providing valuable information about controlled substance prescriptions that are dispensed in the state. PDMP is continue to be among the most promising state-level interventions to improve opioid prescribing, inform clinical practice, and protect patients at risk.

Methods

This was a Retrospective cohort study of PDMP patients who were prescribed an opioid and were subsequently hospitalized for heroin overdose between 2013 and 2015. Our analysis used a combination of univariate and survival data analysis to estimate the risk of heroin overdose hospitalization from the time of the last prescribed opioid to the first day of hospitalization.

The outcome was defined as *Heroin Hospitalization* with any code of 965.01 (ICD9 2013 first quarter to third quarter of 2015), T40.1X1A, T40.1X4A (ICD10 fourth quarter of 2015).

The exposure was defined as *Prescription of Opioid* limited to DEA class I, II, III, & IV.

Our analysis used a combination of univariate and survival data analysis to estimate the risk of heroin hospitalization from the time of the last prescribed opioid to first day of hospitalization due to heroin overdose. Cox Regression Hazard modeling was used to analyze survival time data and to identify the main predictors of heroin hospitalization.

Data were analyzed using the SAS 9.2 and the study was initiated with the Data Governance Board Approval.

Results

From 2013 to 2015, a total of 1,397,493 unique patients that were hospitalized linked to 1,448,224 patients reported in the PDMP who received controlled substance. Among those 699,014 (48%) had at least one hospitalization event and out of those 396 (6%) had at least one hospitalization episode due to heroin. Annual ED visit rates due to heroin overdose have doubled from 179 in 2013 to 396 in 2015. On average, people who stopped receiving prescription drugs were at a 72% increased risk of being hospitalized for heroin overdose within five months with Log-Rank Test significance (p=0.01). Males, 90 morphine milligram equivalent recipients, and kidney disease morbidity were 3.63, 2.99, and 5.64 times higher risk to have heroin overdose hospitalization, respectively.

Conclusions

Patients with a history of stopping prescription drugs within the previous five months are at higher risk for subsequent hospitalization for heroin overdose. Factors such as alcohol use, age, gender, and tapering of prescription influence the risk of heroin hospitalization. It may be prudent to transition patients to alternative treatments before they become addicted to the prescribed drugs.

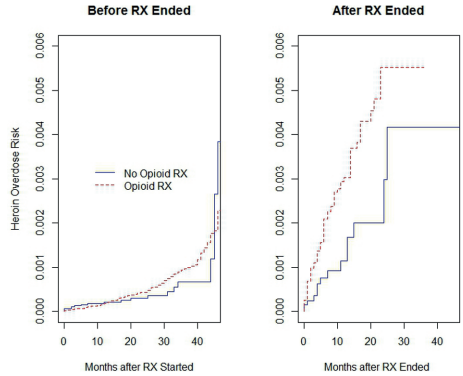

Figure 1: Risk of Heroin Overdose is higher between 0-35 months after the Prescribed Opioid Ended

Keywords

prescription drugs; Heroin; Overdose

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