Introduction

- Tapentadol (Nucynta®) is a Schedule II opioid with a combination of μ-opioid activity and norepinephrine reuptake inhibition. It is used for the management of moderate to severe acute and chronic pain.
- Extended-release (ER) tapentadol (Nucynta ER) was introduced in late 2011 and is formulated to be difficult to crush in an effort to deter abuse via tampering.
- This study compares rates of calls reporting intentional abuse exposure cases between Nucynta ER and other ER Schedule II opioid medications.

Methods

- Data from the Researched, Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System Poison Center Program are used. The RADARS System Poison Center Program obtains data from individuals within the general population and from healthcare providers who are seeking advice regarding potential toxic exposures, including exposures to prescription opioids.
- Cumulative population and dosage units dispensed rates are calculated using data from October 2011 through December 2016. Rates of Nucynta ER reports by intentional abuse exposure cases are compared to ER hydrocodone, ER hydromorphone, ER morphine, ER oxycodone, and ER oxymorphone rates using Poisson regression.
- Unknown active pharmaceutical ingredient formulations were imputed using 100 iterations. Regression coefficients were estimated for each iteration and averaged to give robust estimates.

Results

Population Rates of Calls Reporting Intentional Abuse Cases

- Nucynta ER is significantly lower than ER morphine (p<0.001), ER oxycodone (p<0.001), and ER oxymorphone (p<0.001). Nucynta ER is significantly greater than ER hydrocodone (p<0.001) and ER hydromorphone (p=0.001) (Figure 1).

Dosage Units Dispensed Adjusted Rates of Calls Reporting Intentional Abuse Cases

- Nucynta ER is significantly lower than ER oxycodone (p<0.001) and ER oxymorphone (p<0.001). Nucynta ER is significantly greater than ER hydromorphone (p=0.007). Nucynta ER did not differ significantly from ER morphine and ER hydrocodone (Figure 2).

Conclusions

- Differences in population rates relative to Nucynta ER are consistent with differences in utilization during the study period.
  - The most dispensed ER opioids during the study period (ER oxycodone, ER morphine, ER oxymorphone) had significantly higher population rates than Nucynta ER.
  - The least dispensed ER opioids during the study period (ER hydrocodone and ER hydromorphone) had significantly lower population rates than Nucynta ER.
- Nucynta ER dosage units dispensed rate was significantly less than two ER opioids with greater utilization during the study period, specifically, ER oxycodone and ER oxymorphone.
- Nucynta ER dosage units dispensed rate was significantly greater than ER hydromorphone, an opioid with lower utilization during the study period.

Limitations

- Differences in population rates relative to Nucynta ER are consistent with differences in utilization during the study period – The most dispensed ER opioids during the study period (ER oxycodone, ER morphine, ER oxymorphone) had significantly higher population rates than Nucynta ER.
  - The least dispensed ER opioids during the study period (ER hydrocodone and ER hydromorphone) had significantly lower population rates than Nucynta ER.
- The Nucynta ER dosage units dispensed rate was significantly less than two ER opioids with greater utilization during the study period, specifically, ER oxycodone and ER oxymorphone.
- The Nucynta ER dosage units dispensed rate was significantly greater than ER hydromorphone, an opioid with lower utilization during the study period.

Disclosures

The RADARS System is supported by subscriptions from pharmaceutical manufacturers for surveillance, research and reporting services. RADARS System is the property of Denver Health and Hospital Authority, a political subdivision of the State of Colorado. Denver Health retains exclusive ownership of all data, databases and systems. Subscribers do not participate in data collection or analysis, nor do they have access to the raw data.