

Association between per capita prescribing and abuse of tapentadol and other opioids among individuals entering treatment for opioid use disorders

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INTRODUCTION

Tapentadol is a schedule II atypical opioid analgesic thought to have dual mechanisms of action: mu-receptor agonism and inhibition of norepinephrine reuptake. Scheduling was based on clinical studies where tapentadol had rewarding and reinforcing effects similar to morphine and drug liking scores similar to comparable potencies of hydromorphone. However, in post-marketing surveillance studies, tapentadol has consistently been found to have lower abuse, misuse, and diversion rates than conventional scheduled opioids. Among individuals assessed for substance use disorders, tapentadol abuse has been lower than other schedule II opioids after adjusting for utilization. Drug utilization-adjusted estimates are important adjustments when comparing tapentadol to other drug products given the different degrees of exposure to prescription opioid products. These adjustments allow for comparisons of odds of past month abuse at equivalent levels of exposure. However, in previous studies of treatment-seeking populations, utilization adjustments are performed with prescribing values aggregated for a particular time-period or geographic region. These studies are useful in assessing overall cases relative to prescriptions but may be limited because they do not examine an individual respondents' odds of using a particular drug based on prescribing within their community.

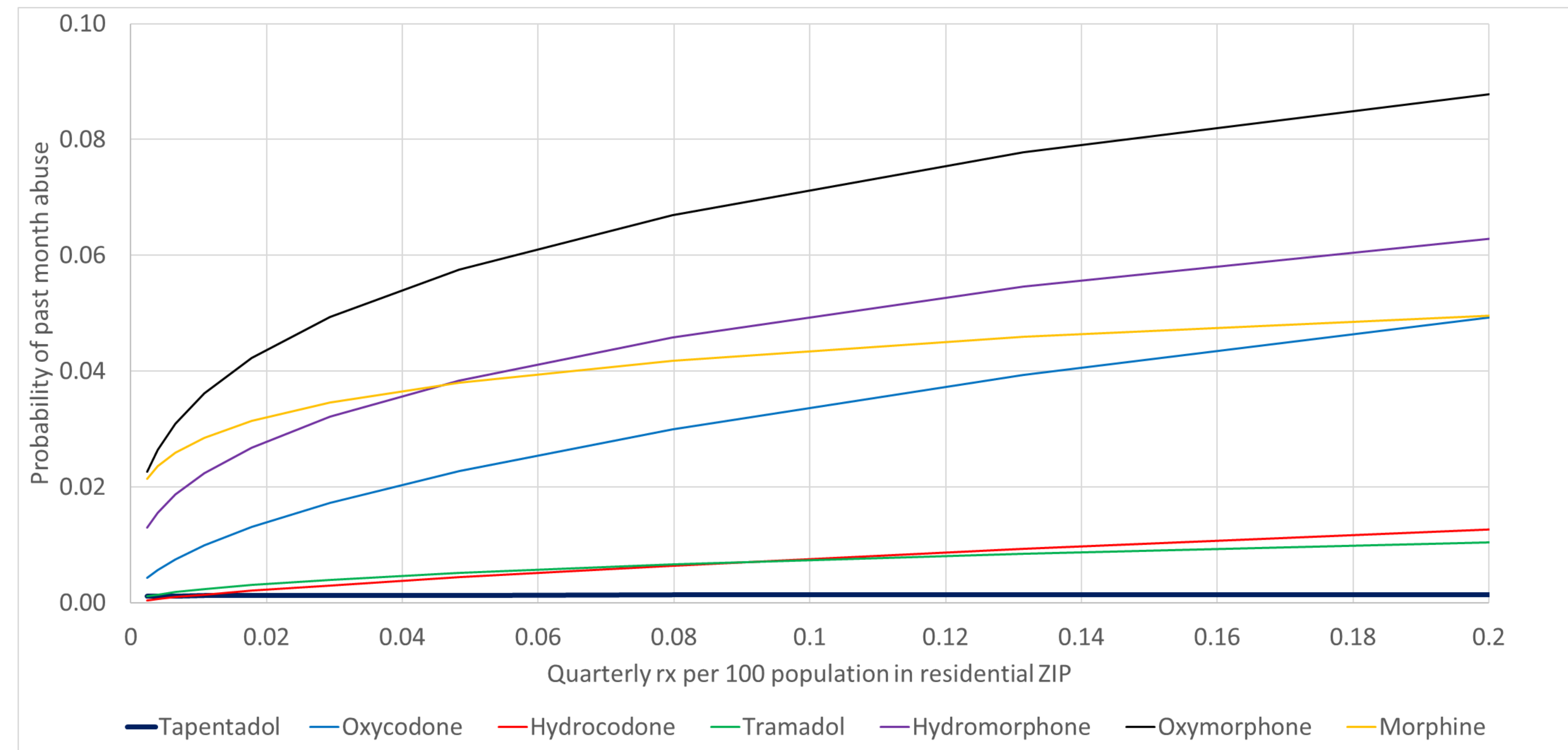
Objective: Compare differences in an individuals' odds of past month abuse of tapentadol to other opioid analgesics using prescriptions per capita in each respondents three-digit ZIP code as the exposure variable.

METHODS

Data collected from 2019 through 2021 from the Researched Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System's Treatment Center Programs Combined (Opioid Treatment Program and the Survey of Key Informants' Patients Program) are included, which collects data from individuals enrolling for treatment for opioid use disorder who endorsed abuse, defined as a respondent who endorsed past month use of one or more opioids to get high. Odds of abuse of tapentadol were compared to hydrocodone, hydromorphone, morphine, oxycodone, oxymorphone, and tramadol. Information on prescriptions dispensed was obtained from the IQVIA™ (Danbury, CT) US-Based Longitudinal Prescription Data database. Per capita prescribing was calculated by dividing quarterly prescriptions dispensed value by the estimated population in that ZIP code. A generalized linear mixed model was performed with a binary outcome indicating past month abuse with a random subject intercept. In each model the predictor was the natural log of prescriptions dispensed per person within a respondents' three-digit ZIP code. Comparisons of odds ratios were conducted at the median prescriptions per capita value for tapentadol.

RESULTS

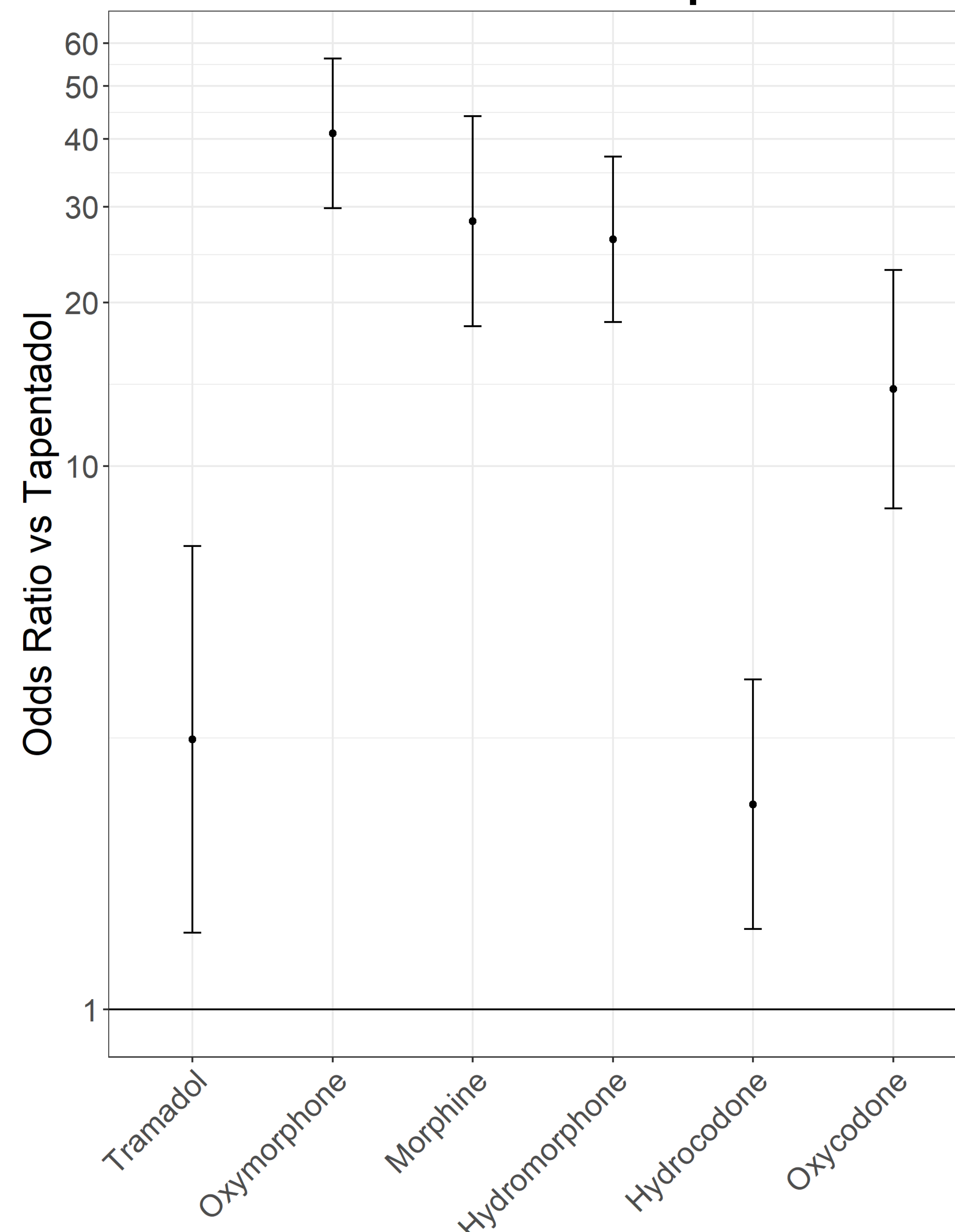
Figure 1: Regional Distribution of Respondents by Drug



The association between prescriptions dispensed per capita within a respondents' three-digit ZIP code and odds of past month abuse was not statistically significant for tapentadol (OR=1.05, p=0.793). (Figure 1)

The association between prescriptions dispensed per capita within a respondents' three-digit ZIP code was statistically significantly greater for oxycodone (p<0.001), hydrocodone (p=0.001), hydromorphone (p<0.001), and tramadol (p<0.001) than for tapentadol. (Figure 2)

Figure 2: Odds Ratios of Abuse vs Tapentadol



Tapentadol abuse is less common than tramadol when accounting for different levels of prescribing.

CONCLUSIONS

These findings are consistent with other published studies that, among individual seeking treatment for opioid use disorders, abuse of tapentadol is less frequent than other scheduled opioid analgesics after adjusting for prescribing volume. This study is unique in the adjustment for exposure to prescription opioids. This study adds to several years of post-marketing surveillance finding that tapentadol abuse is infrequent relative to conventional opioids. Our findings suggest that tapentadol may be an option for pain management with lower abuse potential than other Schedule II opioids.

The RADARS System is supported by subscriptions from pharmaceutical manufacturers, government and non-government agencies 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. This work was supported by Collegium Pharmaceutical. Collegium did not participate in the analysis or drafting this abstract. Collegium reviewed only for proprietary information.

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