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INTRODUCTION

• In the management of acute postoperative pain, IV opioids remain an important pharmacotherapy; however, the benefits of opioid analgesics are limited by opioid-related adverse events (ORAEs).
• Opioid-induced respiratory depression (OIDR) is among the most serious of the ORAEs that increases perioperative cost and hospital length of stay (LOS) and may result in permanent morbidity and mortality.1
• The prospective, observational trial of blinded continuous capnography and oximetry, PROdiction of Opioid-induced Respiratory Depression in Patients monitored by capnoGraphic (PRODIGY) trial that investigated the incidence and risk factors associated with ORD episodes in hospitalized patients receiving narrative opioids, reported a 46% incidence of respiratory depression.2
• A respiratory depression episode in PRODIGY was defined as respiratory rate ≤ 5 breaths/min (bpm), oxygen saturation ≤ 90%, or end-tidal carbon dioxide ≤ 15 or ≥ 60 mm Hg for ≥ 3 minutes, apnea-episode lasting ≥ 30 seconds, or any opioid-related adverse event.

METHODS

• PRODIGY scoring utilized in the exploratory analysis is shown in Table 1. The sum of points categorized patients to low (< 8 points), intermediate (≥ 8 and < 15 points), and high (≥ 15 points) risk for development of OIRD.
• The PRODIGY trial aided in creating a validated novel respiratory depression risk prediction tool, including 5 easy-to-assess variables: age ≥ 60 years by decade, sex, opioid naive, sleep disorders, and chronic heart failure.

DISCLOSURES AND ACKNOWLEDGMENTS

RESULTS

• A total of 768 patients (mean age 54.1 ± 16.1 y; 65% females) were treated with oliceridine (Figure 1).
• 103 patients had a medical history of sleep apnea and/or chronic heart failure.
• The PRODIGY risk-scoring tool in patients with the medical comorbidities of sleep apnea and/or chronic heart failure, the most patients were predicted to be in “intermediate-risk” or “high-risk” for the development of ORD (Table 2).
• Clinical characteristics of patients in the three predicted risk categories are shown in Table 3. None of the patients were opioid naive.
• The dose of oliceridine, and duration of exposure is shown in Table 4.
• Patients in the intermediate- or high-risk categories had a longer duration of treatment than patients in the low-risk category.
• The incidence of ORD in the three predicted risk categories is shown in Figure 2. None of the patients were administered naloxone.
• No patient experienced SpO2 < 90% or RR < 10 bpm at the same time.

LIMITATIONS

• The metrics used to measure ORD in the PRODIGY trial were different from the ones used in the ATHENA study.
• The PRODIGY study collected continuous data whereas the ATHENA study only collected the oxygen saturation and respiratory rate data at prespecified assessment time points throughout the course of the study.
• To confirm with the PRODIGY metrics, we only included in the analysis patients with confirmed episodes of sleep apnea and/or chronic heart failure that resulted in a sample size of 103 patients.

CONCLUSIONS

• Findings from this exploratory analysis suggest that oliceridine shows a trend towards lower incidence of opioid-related respiratory depression (OIRD) in patients categorized to be at intermediate or high risk using the PRODIGY scoring tool.
• The use of oliceridine may be clinically appropriate in patients at high risk for OIRD.
• Further clinical trials are needed to confirm the findings of ORD safety in high-risk patients.

REFERENCES