

The Effect of the COVID-19 Pandemic on Opioid Prescribing for Patients with Pleuritic Pain

Andrew Ormsby, Caitlin Dietche

Background: Over the last few decades, opioid overdoses have been one of the country's top causes of mortality and have been associated with a decline in the nation's average life expectancy. Despite numerous interventions over the years, and being declared a public health emergency in 2017, the opioid crisis has remained an entrenched and difficult issue to address. The long-term use of opioids has been attributed, in part, to physician prescribing behavior including the acute treatment of pain in the hospital inpatient setting. Before the start of COVID-19 pandemic, physicians intensified efforts to reduce their reliance on opioids for the treatment of acute pain in the hospital setting. However, the pandemic's impact on physician prescribing behavior of opioids for acute pain during hospitalization is currently unknown. Increased need for intubation, high rates of ICU admission, and protracted lengths of stay for COVID-19 positive patients may have translated into larger opioid burdens for those patients during hospitalization. Notably, articles have documented evidence of increased opioid overdoses since the first waves of the pandemic. To date, no articles, to our knowledge, have been published on how the COVID-19 pandemic has impacted physician prescribing behavior of opioids on the inpatient setting.

Hypotheses: We hypothesized that the COVID-19 pandemic would reverse efforts to curb opioid usage on the inpatient setting—hospitalized patients would be prescribed opioids more frequently intra-pandemic compared to pre-pandemic. Furthermore, we postulated that COVID-19 patients would be prescribed opioids more frequently and at greater quantities than their peers because of COVID-19 patients' protracted ICU opioid infusions and subsequent inpatient weaning in addition to the paucity of therapies for COVID-19 at the time.

Objective: We sought to understand opioid prescribing for COVID-19 positive and negative patients with pleuritic pain during the first wave of the pandemic. We hypothesized that patients without COVID-19 would be prescribed opioids more frequently intra-pandemic compared to pre-pandemic and postulated that COVID-19 patients would be prescribed opioids more frequently and at greater quantity than their peers.

Design: A retrospective observational analysis of electronic health record data.

Setting: A quaternary academic hospital from February through April 2020.

Participants: 1,400 of 3,169 adult inpatient hospitalizations involving pleuritic pain were included.

Main Measures: Frequency and average daily dose of opioid prescriptions were analyzed using logistic and linear regression. Opioid prescribing habits were compared pre- and intra-pandemic. Hypotheses and primary outcome measures were formulated pre-data collection.

Key Results: During the pandemic, COVID-19 patients were 15.77% less likely to be prescribed opioids compared to patients without COVID-19 (CI -8.98% to -22.56%, $P < 0.001$). Patients without COVID-19 were equally likely to be prescribed opioids pre- and intra-pandemic (95% CI -9.37% to 2.42%, $P = 0.248$). Odds of opioid prescription for COVID-19 patients was 0.44 (95% CI 0.08 to 0.80; $P < 0.001$). Within those given opioids, COVID-19 patients were prescribed 3.0% greater morphine milligram equivalents (MMEs) (95% CI 1.07 to 5.85%; $P < 0.001$).

Conclusion: During the first wave of the pandemic, COVID-19 patients with pleuritic pain were prescribed opioids less frequently than patients without COVID-19, while patients without COVID-19 were equally likely to be prescribed opioid pre- and intra-pandemic. On the other hand, COVID-19 patients treated with opioids were given greater daily MMEs due to the greater utilization of opioid infusions.