Inpatient opioid safety events: beyond a justifiable adverse drug reaction

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Introduction and background

Opioids are high alert, frequently used medications and that are high risk and problem prone. The Vizient Patient Safety Organization (PSO) reviewed 56 opioid-related safety events in which naloxone was used to reverse adverse effects that were voluntarily reported to the PSO from January 2017 through May 2018. More than 70% of the events reviewed were classified as adverse events, not medication error, and not preventable. Review of the events revealed improvement opportunities at each phase of the medication process.

Aim

To identify opportunities to improve quality, safety and health care outcomes related to opioid use.

Methods

The Vizient PSO conducted a review of 56 opioid-related safety events that included documented naloxone use reported between January 2017 and May 2018. The report was limited to cases in which naloxone were used for pain management.

The Vizient PSO included an interdisciplinary team of experts including physicians, pharmacists, nurses, and directors of medication safety to advise on this topic. Members of this advisory team are specialists in pain management and are involved in opioid stewardship programs at their institutions.

A review of the events revealed improvement opportunities at each phase of the medication process

Figure 1 shows the timeline for the opioid safety project. The advisory team reviewed the data and results of a literature review and identified additional questions to be addressed during the analysis and generated. The safe table allows members to hold privileged and confidential deliberations and analysis in opioid use for pain management and is not preventable. Review of the events revealed improvement opportunities at each phase of the medication process.

A Safety Alert was published to call attention to the opportunities identified, doctor lessons learned, and provide evidence-based recommendations for preventing opioid adverse events. An opioid safety webinar to share leading practices will be held in November 2018 and will offer nursing, pharmacy and physician continuing education credits.

Findings

A total of 56 cases were identified in which pain management with one or more opioids was associated with use of naloxone to reverse adverse effects. More than a third of the patients (39%) required to sustain analgesia or were hospitalized as a result of the event.

Figure 2. Degree of harm in high-risk opioid-related safety events in which naloxone was used

In some cases, patients were reported to have brought medications from home and self-administered them without providers’ knowledge, resulting in adverse reactions. A few patients reported having multiple opioids and drugs that complicated monitoring of sedation level, quality and rate of respirations as assessed by a registered nurse. In high-risk patients who require supplemental oxygen, it is recommended that high-risk patients, their caregivers, and providers be educated about opioids and the dangers of respiratory depression.

Figure 3. Reported event type classification for high-risk opioid-related safety events in which naloxone was used

In one case reported to the PSO, the patient’s respiratory sedation level, quality and rate of respirations as assessed by a registered nurse was unusual for a patient receiving naloxone and the patient’s respiratory sedation level, quality and rate of respirations as assessed by a registered nurse was unusual for a patient receiving naloxone in high-risk patients. It was documented that alarming fatigue is a significant issue, monitoring devices must be supplemented with monitoring by an appropriately trained professional.

Factors that contributed to the safety events were captured in the Vizient PSO database and were compared against existing literature and by the expert advisory team (Figure 4).

Figure 4. Factors contributing to high-risk opioid-related safety events

Recommendations

Evaluate medication use for opioid risk control

Establish a leadership team that includes a representative from each phase of the medication process, including a patient, to evaluate and improve opioid use.

Conduct a drug usage evaluation study and failure modes and effects analyses to examine each patient’s medication process.

Conduct a root-cause analysis for all unplanned use of naloxone in cases where opioids are being given for pain management. Define structure, process, and outcome metrics for each phase in the opioid medication process to measure preventable adverse drug events (ADEs) and emergent medications, and to prevent misadministration.

Ensure that providers have access to the necessary clinical information when prescribing and that pharmacy verification is completed before administration of opioids.

Review all opioid events submitted to the Vizient PSO for preventability; edit the event type prior to submitting, and share findings with front line staff to improve communication and prevent misadministration.

In a study of opioid-related safety events, 38% of patients had a history of substance abuse. Therefore, providers should be aware of the dangers of additive respiratory depression associated with concomitant use of opioids and central nervous system depressants; reduce the starting dose of opioids by at least 50% for high-risk patients.

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