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Analysis of Look-Alike/Sound-Alike Medication Errors in the Emergency Department

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Background/Objective

Look-Alike/Sound-Alike (LA/SA) medication errors account for 25% of medication errors. We reviewed patient safety data related to LA/SA medication errors that occurred in the emergency department (ED) compared to other clinical areas in the healthcare system.

Study Hypothesis

ED LA/SA medication errors would account for a significant portion of errors and more severe outcomes than non-ED settings.

Methods

Patient safety event (PSE) data was reviewed using text mining and natural language processing algorithms to search for LA/SA related medication errors. The PSE database contains roughly 90,000 incidents from self-reported near misses and harm events by frontline staff in an academic healthcare system. Each case was reviewed independently and categorized by stage in the medication-use system (documentation, ordering, dispensing or administration) and error severity level (based on anticipated and actual patient outcomes). Comparisons between ED and non-ED datasets consisted of Fisher's exact test using a significance level of 0.05.

Results

A total of 282 incidents met inclusion criteria for a LA/SA error, in which 37 (13%) occurred in the ED. Error frequency by stage was 0% documentation, 22% ordering, 43% dispensing, and 5% administration in the ED versus 9%, 23%, 53% and 15% respectively in non-ED settings ($p=0.049$). The most common LA/SA error pairs in the ED were oxycodone extended release-oxycodone immediate release (11%), ceftriaxone-cefazolin (8%), hydroxyzine-hydralazine (8%), prednisone-prednisolone (8%), and oxycodone-hydrocodone (5%). In the ED, 49% of errors reached the patient versus 38% across the system (NS). Level of error severity did not differ between the ED which included 0% no effect, 19% mild, 53% moderate, 11% severe and 3% critical LA/SA errors vs. 2%, 40%, 50%, 9%, and 0% in non-ED settings respectively.

Discussion

While limited by a small retrospective dataset, the stages of LA/SA errors differed between the ED and non-ED settings. Our findings highlight the opportunity to improve medication processes during the administration and dispensing stages.

Conclusion

The nature of LA/SA errors differed in the ED compared to other clinical settings, necessitating further research to identify the contributing factors and develop mitigation strategies to improve medication administration and dispensing processes in the ED.