POTENTIAL DRUG-DRUG INTERACTIONS WITH HIGH ALERT MEDICATIONS IN A PEDIATRIC INTENSIVE CARE UNIT

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Introduction

High-alert medications (HAM) are defined as medications that bear a heightened risk of causing significant patient harm when these medications are used in error. Drug-drug interactions (DDI), when avoidable and without benefits, are considered adverse drug events [1]. Due to the problems arising from DDI and the reduced safety of HAM, and due to the severity of DDI with HAM and the vulnerability of the pediatric population, there is a higher concern with these interactions, justifying the monitoring of these patients [2]. This study aims to characterize how potential drug-drug interaction (pDDI) with HAM is observed in prescriptions from a pediatric intensive care unit (ICU) of a university hospital.

Material and Methods

The prescriptions of patients admitted to the ICU over a 6-months were analyzed, and information on patient characterization and data on prescribed medications were collected. The characterization of DDI with HAM was performed using Micromedex® according to documentation (excellent, good, poor) and the degree of severity (contraindicated, higher, moderate, minor). Those in which the drugs involved were prescribed in the same prescription were considered (pDDI). In the present study, the clinical manifestations of drug-drug interactions were not evaluated. Therefore, the expression “potential drug-drug interaction” was adopted (CAAE: 36514820.6.0000.5264).

Results and Discussion

Of the 102 patients, 48.0% had at least one pDDI with HAM. Of the 147 medications prescribed, 27.9% were HAM. The average was 3.73 ± 2.89 HAM per patient. A total of 41 prescribed HAM were identified, and only 17 HAMwere involved in any pDDI. Ninety-eight different pDDI with HAM were identified that were recorded 1115 times. Fentanyl was the drug that most interacted, participating in 24 different pDDI, which were registered 369 times. This result was also found by Plaza et al. (2010) [3], in which fentanyl was present in 36 of 54 pDDI. The second HAM that most interacted was midazolam (21 pDDI recorded 330 times), followed by phenobarbital (21 pDDI recorded 315 times).

pDDI with HAM represented 44.0% of total pDDI. The most prevalent pDDI with HAM were fentanyl + midazolam, which was recorded 94 times and affected 31.7% of patients; fentanyl + ranitidine (70 times); midazolam + ranitidine (61 times). An integrative review that aimed to evaluate the characteristics associated with pDDI in patients hospitalized in ICU in Brazil found that the most common pair of drugs found in three studies corresponded to the association of fentanyl and midazolam [4]. Of the 98 pDDI with HAM, 76.5% were considered higher severity and 2.0% contraindicated. Seventy-one (72.4%) had poor documentation. Therefore, it is necessary more deepened studies of pDDI with HAM to be well monitored.

Conclusion

The pediatric population is more vulnerable and more likely to suffer from DDI. Although DDI with HAM is not the most frequent, problems involving DDI and the reduced safety of HAM justify monitoring of exposed patients. This study contributed to the characterization of pDDI with HAM in pediatrics, helping a multidisciplinary team involved in care to carry out the most appropriate clinical management.

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