Potential DRP related to computerized physician order entry: an updating of DRP classifications needed.

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Background

Despite the fact that the implementation of Computerized Physician Order Entry (CPOE) is recommended to improve patient safety, literature has revealed safety risks associated with this system. Identification and quantification of potential drug-related problems (DRP) related to an incorrect use of CPOE (DRP-CPOE) is crucial in order to correct and avoid them.

Purpose

To analyse the types of potential DRP-CPOE and the main drugs involved in them, and to compare the characteristics of admitted patients presenting a DRP-CPOE versus other DRPs.

Method

Prospective observational study carried out in hospitalized patients during 2012.
Data collected: total DRP and DRP-CPOE (types and main drugs involved), demographic data (age, sex), admitting department (surgical or medical).
Chi-square or Fisher's exact test for categorical variables, Student's T-test or Mann-Whitney U test for quantitative variables.

Findings

Total DRP: 3,558; DRP-CPOE: 707 (19.87%). Types of DRP-CPOE and main drugs involved (frequency >5%):

-Drug included in the hospital formulary, but prescribed as "not available": 36 (5.1%) (montelukast 3 (8.3%))
-Double prescription: 187 (26.4%) (ondansetron 29 (15.5%), pantoprazole 29 (15.5%), acetaminophen 27 (14.4%), bemiparin 17 (9.1%))
-Incorrect units of a prescribed dose, resulting in a higher or lower recommended dosage: 251 (35.5%) (amoxicillin-clavulanic acid 24 (9.6%), vancomycin 13 (5.2%))
-Inappropriate frequency of administration: 63 (8.9%) (digoxin 10 (15.9%))
-Inappropriate route of administration: 6 (0.8%)
-Inappropriate treatment duration: 53 (7.5%) (cefazolin 18 (34.0%), digoxin 6 (11.3%))
-Unintended medication discrepancies in dosage (prescribed dosage different from the patient's existing dosage): 109 (15.4%) (digoxin 17 (15.6%))
-Clinical trial drug prescribed as "not included in hospital formulary" instead of using a specific application for CPOE clinical trials: 2 (0.3%)
-Admitted patients with DRP-CPOE versus other DRPs: men (362 (51.2%) vs 1,564 (54.9%); p=0.081); age (66.0 (18.9) vs 68.4 (16.3) years; p=0.001); surgical admission (346 (48.9%) vs 1,059 (37.1%); p<0.001).

Conclusions

-The fact that digoxin, a drug with a narrow therapeutic range, is one of the drugs most involved in CPOE-DRP is worrisome.
-Surgically admitted patients are at higher risk of developing a potential DRP-CPOE.
-The development of a specific multidisciplinary committee to assess clinicians' use of CPOE and to introduce new suggestions for optimizing this tool is essential to improve patient safety.
-According to the potential clinical impact of DRP-CPOE, it is crucial to identify and quantify this kind of DRP by updating current DRP classifications.