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Evaluating the Use of a CPOE for Chemotherapy Protocols

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Abstract. Chemotherapy drugs are one of the most common causes of serious and fatal medication errors, especially during prescribing, where computerized physician order entry (CPOE) take on importance. This study proposes the description of the post-implementation status of a CPOE in a highly specialized hospital between January and June 2018, among patients older than 18 years. Results: a total of 8835 protocols were indicated using the specific CPOE (93% use rate over all protocols) 91% completed the administration, 1.2% were rejected by pharmacy, and 6.8% was canceled. The most frequent cause of rejection by pharmacy and cancellation by oncologist was an inadequate dose. Most of the protocols indicated using the CPOE implemented, with a reject by pharmacy rate of 1.2%, indicates the utility of CPOE as an error prevention strategy.

Keywords. Computerized provider order entry, oncology, chemotherapy

1. Introduction

Chemotherapy drugs are characterized by low therapeutic index and significant toxicities at clinically prescribed doses, which, added to the vulnerability of patients with cancer, raises serious problems of drug safety [1]. Medication errors can occur at any stage of the chemotherapy process, especially at the prescription stage [2]. The most common source of error was within the order phase and that, compared with non-chemotherapy medication errors, could rise up to 48% more likely to be serious in nature [3]. The safety of chemotherapy has been a long-standing issue, particularly because is a complex process, with multiple steps and health professionals involved in the prescription, dispensing and administration of these agents [4][5]. CPOE is associated with a significant reduction in preventable adverse drug events [6] and focusing on chemotherapy, most studies find beneficial when compared to paper prescription [7].

2. Methods

A descriptive cross-sectional study was carried out in order to study the amount of oncological prescriptions made from the specific CPOE.

3. Results

During the study period, a total of 10475 protocols were indicated, of which 1380 were excluded from the San Justo center (other medical center in the network), 255 since they did not have an assigned sector and 5 protocols that were indicated in a pediatric area, giving a total of 8835 protocols. Each of the protocols corresponds to a patient. The CPOE was used in 93% of the oncological prescriptions. The remaining 7%

corresponded to indications on paper, drugs not approved by the Committee of the Cycle of Medication and drugs of research protocols. There was a total of 195 protocols loaded in the management system, of which 146 were indicated. There was an average of 1472 protocols per month. A total of 7602 (91%) protocols were finalized. Oncology pharmacy put in review 107 protocols (1.2%). The number of canceled protocols 602 (6.8%) includes both those canceled by medical initiative and those placed on review by pharmacy. In 41% (249) of the cases the oncologist entered a justification in free text at the time of cancellation. The most frequent reason was the need to modify the dose (33% - 82/249). There was 5% (13/249) of justifications with illegible content. Within the justifications charged by oncological pharmacy to put a protocol in the status "In review" (1.2%), 47% was related to an inadequate dose. All the justifications were complete regarding the reason and the instructions for correction by the physician.

4. Discussion

Numerous studies worldwide report the advantages of having a computerized physician order entry for prescribing chemotherapy protocols, supported by the evidence of providing patient safety, comparing with paper prescription [1]. The percentage of use of the CPOE was 93%, which indicates that most of the prescribed protocols used this system. Similarly, a study conducted in Switzerland where only 7% of the total prescriptions were manual and also highlight that the average error rate decreased 22 times [4].

5. Conclusion

Most of the protocols indicated used the CPOE for prescribing chemotherapy protocols implemented, with a rate of use greater than 90%. The rate of protocols intervened by the pharmacist of 1.2% indicates the utility of a CPOE as an error prevention strategy.

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