Drug-drug interactions in fluoropyrimidine based regimens used in colorectal cancer treatment

PS-099

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Background

A drug interaction is the pharmacological or clinical response to the administration or co-exposure of a drug with other substance that modifies patient's response to the drug. Drug interactions in oncology are of particular importance due to the narrow therapeutic index and its inherent toxicity. The incidence of interactions increases when patients are taking two or more medications. In cancer patients this is very common, they often take different medications as part of their cancer treatment or management of other co-morbidities. Interactions with other medications can cause significant changes that can lead to lack of efficacy or enhanced toxicity.

Purpose

The purpose of this study was the Identification of potential drug-drug interactions in patients with colorectal cancer treated with fluoropyrimidines based regimens and concomitant therapy.

Methods

A retrospective study was carried out between January and March 2014, in a general central hospital, to evaluate drug interactions in patients with colorectal cancer that had *de novo* prescriptions of chemotherapy. The chemotherapy regimens included in this study were FOLFOX4, mFOLFOX6, FOLFIRI, capecitabine, fluorouracil continuous infusion and supportive therapy for prevention of emesis (dexamethasone, ondansetron). Drug-drug interactions between chemotherapy, supportive therapy and other drugs were screened using the Lexi-interact data base, which classifies interactions according to a risk rating, that varies from A to X, and suggests a type of action. Oncologists were informed when needed.

Results (I)

During the study period 43 new chemotherapy prescriptions for treatment of colorectal cancer were included. The most prescribed chemotherapy regimens were FOLFOX and FOLFIRI. Dexamethasone and ondansetron were prescribed in 27 cycles, as part of the pre-medication.

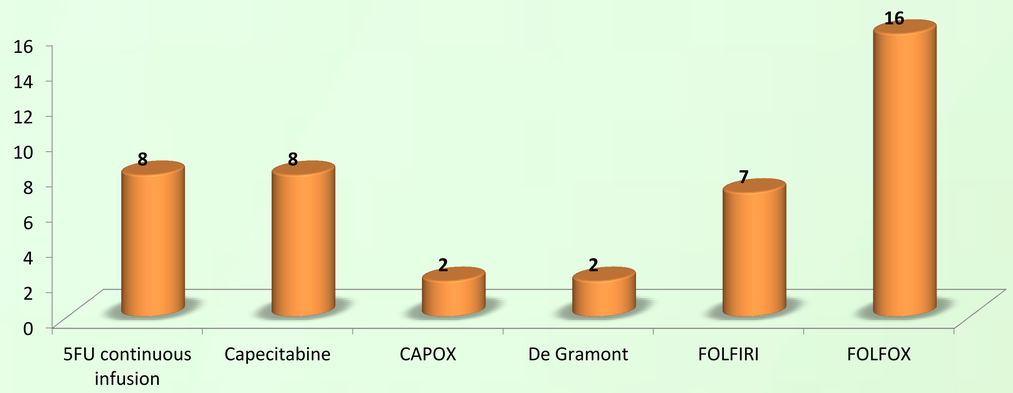

Fig. 1: Type of chemotherapy regimens prescribed

After consulting the electronic medical records it was found that, of the 43 prescriptions included, only 29 had co-prescription of drugs for treatment of other morbidities.

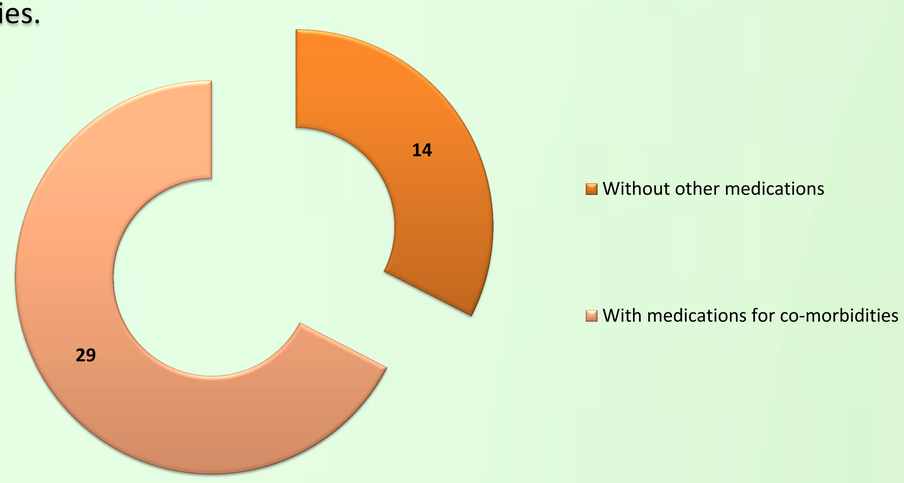

Fig. 2: Nº of chemotherapy prescriptions with co-medication

Results (II)

The 29 co-prescriptions accounted for 108 drugs. The most common prescribed drugs were included in the Cardiovascular and Central Nervous System groups.

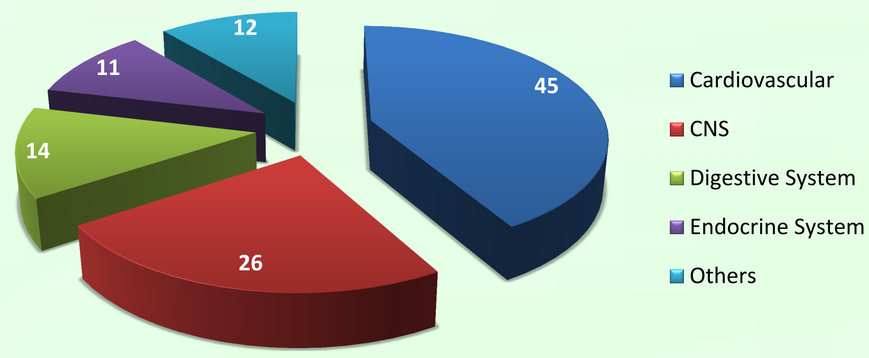

Fig. 3: Prescribed drugs groups

We identified a total of 34 interactions, 33 required either monitoring of side effects (Risk Rating C) or recommendations for treatment modification or aggressive monitoring (Risk Rating D). One interaction was Risk Rating X and this association should be avoided. All interactions were discussed with the oncologist that attended the patient.

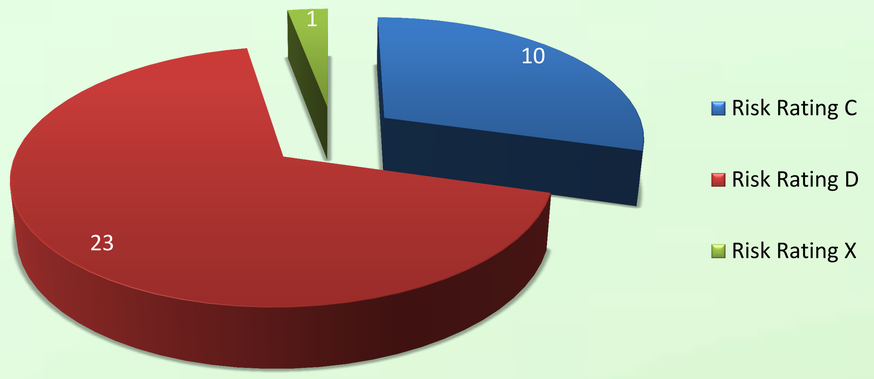

Fig. 4: Distribution by Risk Rating

We found an average of 1,2 interactions per chemotherapy prescription. The drugs with the highest number of interactions were dexamethasone and fluorouracil.

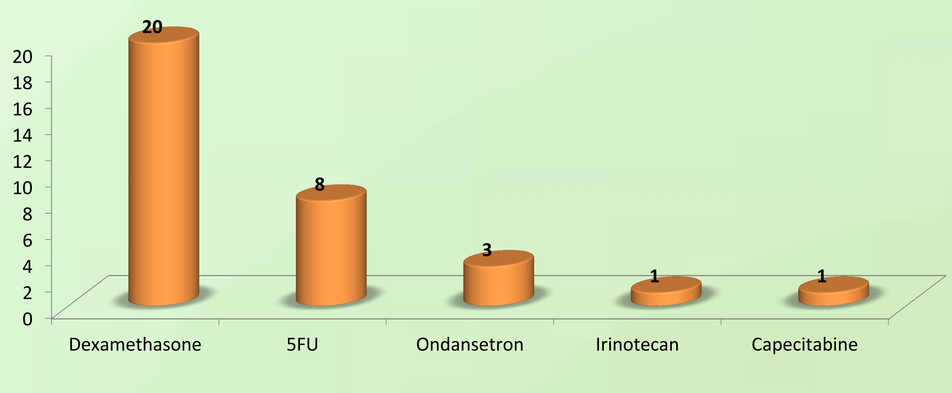

Fig. 5: Type of chemotherapy cycle prescribed

Discusion/ Conclusions

Despite the small number of prescriptions involved, this study is important to emphasize that cancer patients have an increased risk of drug interactions. They often have co-morbidities that require treatment, as well as drugs included in chemotherapy regimens (anti emetics and cytotoxics). The list of medication used for the treatment of co-morbidities was obtained from electronic medical records, hence Over The Counter drugs and dietary supplements are not reflected in this study. It would be important to implement this screening in all cancer patients, using electronic medical records and interviews, to minimize the occurrence of drug interactions. The identification of drug interactions enables their inclusion in the electronic prescription program, allowing the emission of alerts when the oncologist is prescribing.

References
[1] Frequent interactions between chemotherapy and community-dispensed drugs in a continuous screening programme; M. Crul, K.D. Yap, W.E. Terpstra; European Journal of Hospital Pharmacy April 2012 Vol 19 No 2
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