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Treatment-Related Drug Interactions in Cancer Patients

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Description

Since cancer patients take a lot of medications, drug interactions are a major concern because they can have serious effects. As a result, a study was planned to find interactions that lead to interventions. It was found that the clinical pharmacologist's advice doubled the number of interventions. An evaluation of prescribed drugs is required in oncology to enhance drug safety. Drug interactions, or DDIs, are medication errors that can lead to serious or even fatal adverse events and are defined as the occurrence of a harmful combination of prescribed drugs in a given patient. There are two categories for *in vivo* DDIs: DDIs that are pharmacokinetic and pharmacodynamics. A drug's pharmacokinetic properties absorption, distribution, metabolism, or excretion is altered by another drug in pharmacokinetic DDIs. When two drugs are taken at the same time in pharmacodynamics DDIs, an additive, synergistic, or antagonistic effect occurs (for instance, fluorouracil and leucovorin) [1].

In oncology, DDIs are a major concern because patients typically take numerous medications in addition to their anticancer treatment. Additionally, the majority of anticancer medications have a low therapeutic index and are highly toxic. Surprisingly, DDI screenings for cancer patients are uncommon in the majority of nations. Despite these concerns, the prevalence of DDIs involving anticancer drugs has only been the subject of three retrospective studies. In two of these studies, ambulatory cancer patients receiving IV therapy were the subjects. Anticancer treatment and these studies found that between 27 and 58 percent of patients had at least one DDI. A multicentre study of ambulatory cancer patients taking oral anticancer medication yielded comparable results. In addition, the following factors were found to be determinants of DDIs in chemotherapy: DDIs were linked to the number of co-medications, use of over-the-counter (OTC) medications, type of (anticancer) medication and presence of particular tumours. However, due to the retrospective nature of these studies, it is unclear whether these DDIs were genuine medication errors or drug–drug combinations chosen intentionally by the (hemato)oncologist (and managed, for example, through intensive monitoring) [2].

As a result, a prospective study was planned to find DDIs that led to clinical interventions in ambulatory cancer patients who were starting a new oral or intravenous treatment. Chemotherapy regimen this study's secondary objective was to learn more about potential determinants of DDIs that lead to interventions. The medications were broken down into the following four groups: drugs to treat comorbidities drugs to treat cancer and OTC drugs [including food (supplements) are some of the terms used. All cytostatic ant hormonal and targeted drugs used to treat cancer were considered anticancer drugs, while all supportive care drugs (such as antiemetics) were included. All drugs used to treat diseases other than cancer were considered comorbidities. At the time of the interview, OTC drugs included all herbal medicines, food supplements and vitamins used without a prescription. Components that were pharmacologically active were counted as drugs. Each pharmacologically active ingredient was counted separately in the analysis if a formulation contained multiple ingredients. A drug was counted as one when it was taken in different doses or through different routes of administration [3].

Using the Micromedex drug interaction software program, the patient's medication was checked for DDIs following the interview. A second drug–drug interaction software program was used for an additional medication review in order to achieve the highest possible accuracy. The analysis included a single count of DDIs found in either one or both databases. When either an anticancer drug or a supportive care drug as defined above, was involved, a DDI was included in the analysis. An expert team of three certified clinical pharmacologists received an overview of the patient's demographic characteristics, comorbidities and identified DDIs. Based on the patient's individual characteristics and the medication that was used, the expert team members first looked over the DDI lists to see if there was a need to intervene in a particular DDI. Consensus had to be reached if the expert team's individual recommendations were inconsistent. The (hamate) oncologist in charge of the patient received advice on how to manage a DDI if it was determined that it required an intervention. The (hemato) oncologist who was in charge of the patient chose whether or not to carry out the proposed intervention in close collaboration with the experts on the team [4].

The DDI was considered to be potentially clinically relevant in the event of an intervention.. Mechanism-based DDIs were divided into three main categories: DDIs with unknown mechanisms, pharmacokinetic DDIs and pharmacodynamics DDIs. QTc interactions, which are drug combinations with potential QTc interval prolongation and/or torsade's de pointes inducing properties, Gastrointestinal (GI) interactions, which are drug combinations that may increase the risk of GI-bleeding and other pharmacodynamics DDIs, were the subcategories under which pharmacodynamics DDIs were classified. Central nervous system (CNS) interactions are drug combinations that are associated with drowsiness and an increased risk. A total of 302 patients, or 82%, were included in this study out of a total of 368 patients who were asked to participate. The majority of patients were male, with a mean age of 61 (range 22–84). A solid malignancy was found in 87 percent of the patients, with gastrointestinal, breast and genito-urinary malignancies being the most common. 81% of all patients took at least one over-the-counter drug and the average number of drugs taken by each patient ranged from one to 25. 57% of patients had at least one comorbidity and the median number of comorbidities per patient was one [5].

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Conflict of Interest

No potential conflict of interest was reported by the authors.

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