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Interactions between Anticancer Medications; an Useful and Universal Tool

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Introduction

Anticancer medications frequently cause Drug-Drug Interactions (DDIs), which can have a major impact on therapeutic effectiveness and toxicity. As a result, a multidisciplinary expert panel in the Netherlands is evaluating the clinical importance of DDIs in cancer and making suggestions for their treatment. The methodology and findings of an evidence and consensus based assessment of DDIs between anticancer and non-anticancer medicines are presented. Drug-drug interactions with anticancer drugs: evidence based and consensus based recommendations; a practical and universal management tool to detect probable DDIs involving anticancer medications, a literature search was conducted using PubMed and EMA and FDA evaluation reports. A concept report for risk analysis and management guidance was developed for each prospective DDI. This risk analysis, as well as the accompanying suggestions, were then evaluated and weighed. Drug-Drug Interactions (DDIs) with anticancer medications are prevalent, and they can have a major impact on therapeutic effectiveness and toxicity. As a result, a multidisciplinary expert panel in the Netherlands is evaluating the clinical importance of DDIs in cancer and making suggestions for their management. The approach and results of an evidence and consensus based assessment of DDIs between anticancer and non-anticancer medicines are presented. Anticancer medication interactions: evidence-based and consensus based recommendations; a practical and universal approach.

Description

There have been 290 possible DDIs identified in the literature thus far. The expert group classified 94 (32%) of the 290 possible DDIs as clinically significant, requiring an automatic alarm and a proposed action. In addition, 110 DDIs were found to be clinically insignificant. For 86 possible DDIs, the evidence supporting a relevant DDI was insufficient, and no warning or advice for a proposed intervention was sent in these circumstances. There have been 290 possible DDIs identified in the literature thus far. The Expert Group classified 94 (32%) of the 290 possible DDIs as clinically significant, requiring an automatic alarm and a proposed action. In addition, 110 DDIs have been recognised as clinically significant.

The prevalence of cancer has dramatically climbed in recent decades, making it the top cause of death globally [1]. Cancer primarily affects people in their later years of life, with over two-thirds of cancer patients being 65 or older at the time of diagnosis [2]. Comorbidities and polypharmacy, defined as the use of more than five drugs at the same time, are also frequent in older patients [3]. As a result, cancer patients are at a much higher risk for drug related issues such drug-drug interactions (DDIs). There have been 290 possible DDIs identified in the literature thus far. The Expert Group has recognised 94 (32%) of the 290 possible DDIs as clinically important, with a requirement for an automatic alarm and a proposed treatment. Furthermore, because many anticancer medicines are powerful and have tight therapeutic windows, (small) alterations in pharmacodynamic or pharmacokinetic characteristics generated by DDIs can have a significant impact on effectiveness or toxicity.

The anticancer drug is viewed as a victim in this case. At the same time, an anticancer medicine can function as the culprit, compromising the efficacy or toxicity of other treatments taken at the same time. Our multidisciplinary expert group, which included (hospital) pharmacists, medical doctors, and nurses, adopted an innovative technique to acquire robust medication surveillance in (hemato) oncology. The prevalence of cancer has dramatically climbed in recent decades, making it the top cause of death globally. Cancer mainly affects people in their forties and fifties, with almost two-thirds of cancer patients being over the age of 65. The group was founded in 2006 by oncologists, haematologists, internists, and clinical pharmacologists. The Expert Group identified probable Drug-Drug Interactions (DDIs) between anticancer and non-anticancer medications, assessed their clinical importance, and made practical suggestions for their management. The findings of these evaluations, as well as practical recommendations for managing these DDIs, were then made available to healthcare providers *via* integration into the national computerised medication surveillance system. DDI warnings appear during the prescription procedure in this system. The goal was to increase pharmaceutical safety and balance effectiveness and toxicity during anticancer treatment. Furthermore, because many anticancer medicines are powerful and have tight therapeutic windows, (small) alterations in pharmacodynamic or pharmacokinetic characteristics generated by DDIs can have a significant impact on effectiveness or toxicity. In since the multidisciplinary expert group's inception, 290 possible DDIs have been discovered, with nearly half of them being deemed clinically relevant. The DDI evaluations and treatment recommendations have been incorporated into all national electronic prescription systems, giving doctors and (hospital) pharmacists with a practical tool for managing DDIs involving anticancer drugs. Furthermore, robust medication surveillance on DDIs is easier and ensured, and patient safety is enhanced. The group was founded in 2006 by oncologists, haematologists, internists, and clinical pharmacologists. The expert group identified probable Drug-Drug Interactions (DDIs) between anticancer and non-anticancer medications, assessed their clinical importance, and made practical suggestions for their management. The findings of these evaluations, as well as practical recommendations for managing these DDIs, were made available to healthcare providers. With the rising complexity of anticancer therapy and the ageing of the population, proper medication supervision of DDIs in this group is becoming more critical. DDIs are often misdiagnosed by prescribers, according to many studies, and the prevalence of (clinically significant) DDIs in cancer patients is

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considerable. Although most DDIs are minor, some can be severe or even fatal, necessitating treatment. This can also apply to Over The Counter (OTC) and herbal medications, for which greater study into their impact on anticancer treatment effectiveness and toxicity is needed. Since the Multidisciplinary Expert Group's inception, 290 possible DDIs have been discovered, with nearly half of them being deemed clinically relevant. The DDI evaluations and management standards are combined.

Conclusion

More precise screening technologies for the identification of DDIs are required as the complexity of anticancer therapy rises, in order to improve effectiveness and reduce harm. This page provides a comprehensive summary of clinically relevant DDIs associated with anticancer treatment. Furthermore, a simple method for evaluating and integrating DDI recommendations into the national electronic prescription system is shown, which may provide a systematic, evidence based, and consensus based tool for DDI drug tracking throughout anticancer therapy. This study's overview and specific universal tools may enable (hemato) oncologists and pharmacists become more aware of DDIs during anticancer therapy and lead to tighter collaboration in the assessment, management, and incorporation of these DDIs into national electronic prescription systems.

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