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**Opinion**

# AN INTERACTION DATABASE FOR ANTIEPILEPTIC AND CHEMOTHERAPY REGIMENS

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## INTRODUCTION

Typically, anticancer treatment consists of a single or multiple drug regimen. Newer drugs, such as targeted therapies, are gaining widespread interest due to their roles in the treatment of various cancers and are also significantly being used in combination with first-line cytotoxic chemotherapies.6 However, this increase in the use of combination therapies in cancer patients poses them to high risks of manifesting drug–drug interactions (DDIs). This is because the increasing knowledge of cell kinetics and the pharmacology of anti-tumor agents has led to their combined use in order to maximize therapeutic Because anticancer drugs (ACDs) not only have complex pharmacological profiles but also narrow therapeutic indices and steep dose–toxicity curves, the risk of DDIs has been found to significantly increase from 5.6% to 84% when the number of concomitant medications is increased from 2 to 6.8. DDIs are thought to be the cause of approximately 20–30% of all adverse drug reactions. Additionally, cancer patients are more likely to experience DDI-related adverse events due to physiological changes. A recent study found that 27% of cancer patients had at least one potential drug interaction, with 86% classifying it as major or moderate.9 For instance, the interaction between fluorouracil, which is an antiepileptic drug (AED), and phenytoin, which is an ACD, can cause increased plasma concentrations of phenytoin due to decreased metabolism, which can lead to signs and symptoms of phenytoin toxicity [1,2].

## DISCUSSION

Seizures are normally found in patients who present with cerebrum cancers and metastases. Depending on the type of tumor, the incidence can range anywhere from 20% to 70%. A further 10-20% of patients are impacted as the growth advances in light of the fact that their seizure movement frequently increments in recurrence and seriousness. Additionally, a number of primary cancers are particularly concerned about CNS metastasis. CNS metastasis may occur in varying numbers of cases of each primary cancer. Many of these patients with CNS metastasis may have seizures and require long-term anticonvulsant treatment. The viability of AEDs in the treatment of epilepsy is deep rooted and the prophylactic utilization of anticonvulsant treatment is normal practice for clinicians treating patients with cerebrum

growths, notwithstanding whether these patients have had episodes of seizures before, probably founded on private inclination, preparing and experience, in spite of an absence of clinically accessible proof on its viability. This practice may also be biased due to the liability issue of being "sensitive" to any unfavorable patient outcomes, such as seizures, which may result in family members taking unnecessary legal action. Therefore, it is essential for medical professionals to make decisions regarding the patient's drug use that are accurate, timely, safe, and effective. To avoid unwanted toxicities and inadequate drug exposures due to DDIs, they must be vigilant when prescribing other medications concurrently with anticancer agents. There are three situations in which DDIs might possibly influence the treatment for malignant growth patients: ( a) Adding an interacting drug to a patient's current chemotherapy, b) Giving chemotherapy to a patient who is taking an interacting drug simultaneously, and c) Taking an interacting drug out of a patient's ongoing chemotherapy. Pharmacokinetic as well as pharmacodynamic collaborations can result, prompting clinically huge poison levels or restorative disappointments. Clinicians can better manage their patients' drug therapies if they are aware of the magnitude of the DDIs [3,4].

In their clinical work, healthcare professionals are increasingly embracing information technology (IT). The use of malignant growth informatics has empowered medical services experts to keep themselves refreshed in the most recent improvements in oncology, and furthermore appropriate restorative administration methodologies using on the web data sets and programming devices. Drug information databases that provide pertinent DDI information on ACD therapies have the potential to enhance cancer patients' quality of life and pharmaceutical care. Although more than two thousand drug interactions have been identified, only a small number are clinically relevant. To provide the best possible care for the patient's well-being, the healthcare professional faces the challenge of critically evaluating the vast amount of information that is available. The American Hospital Formulary Service (AHFS) Drug Information British National Formulary (BNF),20 Lexi-Comp Online,21 and Micromedex Healthcare Series22 are all online databases that can be used by healthcare professionals as drug information resources. On the other hand, there is currently no drug interaction database that is specifically designed to make it possible to search for ACD interactions based on chemotherapy regimens. To search for drug interactions, most of the drug interaction databases that are currently available require individual drugs to be entered into a patient's prescription. As a result, the project's goal is to provide an oncology-specific drug interaction database that is useful to clinicians who work with cancer patients. Single-agent and multiple-agent chemotherapy regimens, as well as DDIs with ACDs, will be the primary focus of this database. The generic and indexed terms of the drugs, their pharmacological categories, mechanisms of action, percentages of bound protein, metabolism and elimination routes, and enzymatic parameters were among the drug-related data compiled. whereas references substantiating the use of the regimens in cancer treatment were included in the chemotherapy-related information, as were the acronyms for the chemotherapy regimens, the drugs in the regimen, and the types of cancer they treat.

Then again, drug connection data comprised of the association impacts, communication components, proving confirmations, proposed administration plans, and references. These details were gathered from the aforementioned resources as well as published literature from PubMed that was searched for the terms "anticancer," "antiepileptic," "chemotherapy regimen," and "drug interactions," as well as the generic names of the various ACDs and AEDs. This information would be compiled with the appropriate substantiating evidence and reference citations whenever it was discovered that the DDI documented in the various resources differed from one another. OncoRx is an oncology drug interaction database that can be accessed at www.onco-informatics.com. It enables the identification of DDIs between anticancer agents and adjuvant drug therapy [5,6].

## CONCLUSION

A registered pharmacist in Singapore with dual training in the pharmaceutical sciences and digital media production created this database as part of a doctoral research project; in collaboration with lecturers from the National University of Singapore's Faculty of Science's Department of Pharmacy; one of whom is board-certified in the United States as both a pharmacotherapy specialist and an oncology pharmacist and works concurrently in the National Cancer Center, Singapore, pharmacy department. The first database of its kind, OncoRx, can identify interactions between chemotherapy regimens that are part of a combination. The pharmacokinetic properties of anticancer drugs and drug interactions with other medications, like anticonvulsants, are covered in depth in this database. OncoRx is intended to enhance the pharmaceutical care provided to cancer patients by clinicians by supplementing the existing drug databases. We hope that our database will serve as the cancer informatics bridge to bring oncology drug interactions from the bench to the bedside by raising awareness of these interactions among healthcare professionals and other researchers.

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