

INTERACTIONS WITH ANTICANCER AGENTS IN CLINICAL PRACTICE: MORE FREQUENT THAN WE IMAGINE

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Background

Drug interactions are an under-recognized and not much studied issue in oncology. However cancer patients often take many drugs, herbs or vitamins besides their chemotherapy, and even a slight increase or decrease in cytotoxic activity due to a drug interaction could result in excessive toxicity or reduced efficacy.

Objective

To evaluate the frequency of interactions of major and moderate significance involving anticancer agents in a group of cancer patients.

Methods

Design

- 9-week prospective observational study at Mont-Godinne teaching Hospital (Yvoir, Belgium) from 17 November 2008 to 16 January 2009.

Setting

- Inclusion of patients with solid malignancies who came to the day hospital to receive chemotherapy or who were hospitalized in oncology during the study period
- Patients questioned by a clinical pharmacist about their ongoing treatments (including over-the-counter (OTC) drugs, herbs and vitamins) and their alcohol and tobacco consumption
- Use of a combination of three renowned drug interaction compendia to identify drug interactions: Micromedex[®] Healthcare Series online, Epocrates online and Stockley's Drug Interactions 2008
- Patient consent and approval of the ethics committee

Main Outcome Measures

- Frequency of interactions
- Type of drugs involved
- Consequences of interactions
- Management of interactions

Results

- Inclusion of 122 patients (59 women, 63 men; mean age, 63 years old)
- Patients' characteristics:
 - Average of 7.5 (range, 1-22) medications besides their chemotherapy, including herbs and vitamins
 - More than 80% of patients used at least one OTC drug and 36% used herbs or vitamins.
- Interactions with anticancer agents :
 - A total of 41 interactions of major or moderate severity involving an anticancer agent identified among 25% of patients (Table 1)
 - Potential adverse consequences : far more often an increased toxicity (82.9%) than a decreased efficacy (17.1%) of one or both interacting drugs
 - Anticancer drugs mostly involved : cisplatin (12 times) and methotrexate (6 times)
 - Drugs or other products involved in interactions with anticancer agents : see Figure 1.
 - Most frequent co-medications involved: vitamin K antagonists, proton pump inhibitors and diuretics
 - Management suggested by the compendia see Figure 2.

Table 1 : Prevalence of interactions involving an anticancer agent

Variable	No.	%
Total patients	122	100
With ≥1 interaction(s)	30	24,6
With 2 interactions	9	7,4
With 3 interactions	1	0,8
With ≥1 interaction(s), interactions between 2 chemotherapy excluded	23	18,9

Figure 1 : Drugs/products involved in interactions with anticancer agents

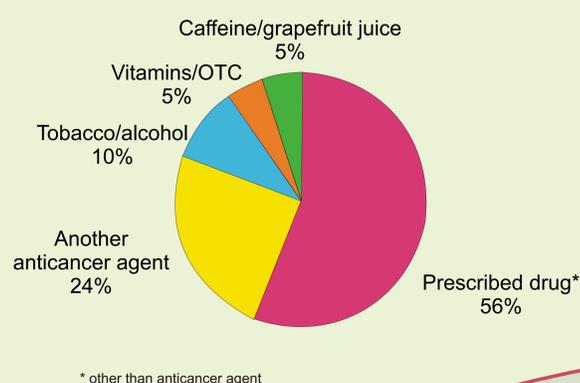
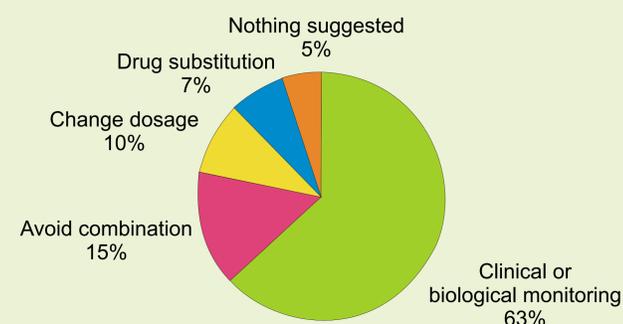


Figure 2 : Management recommended to prevent adverse drug events from interactions



Conclusions

- Interactions involving anticancer agents are **frequent** (one out of four patients).
- The prevalence of adverse drug events secondary to these interactions remains unknown.
- It is **essential** to take preventive measures in order to avoid increased toxicity or decreased efficacy of the drugs, at least for more frequent and more severe interactions.
- Most of the time, this simply involves surveillance of biological or clinical parameters.
- Collaboration** with a clinical pharmacist may be useful for the prescribing physician.
- Perspective:** Development of a practical tool for prescribers, listing only major interactions with the most often prescribed and involved drugs.