# Psychotropic and cancer medication drug interaction tool

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## Introduction

The occurrence of psychosocial symptoms in patients diagnosed with cancer is being increasingly recognised, with reported incidences between 30% to 60%. Though psychological therapy accounts for the majority of treatment, there is increasing use of psychotropic agents to treat anxiety and depression and the number of cancer medications is increasing. Many of these cancer medications have the potential for pharmacokinetic and pharmacodynamic interactions with psychotropic agents.

## Aims

To develop a tool to assist both prescribers and pharmacists with checking potential interactions between cancer treatments and psychotropic agents. The tool identifies if an interaction is present and states the action to be taken by the prescriber to ensure safe and effective use of the medications.

## Method

The most commonly used chemotherapy (intravenous), antipsychotic, antidepressant and mood stabilising agents were identified. Identifications between each of the agents were identified by checking a number of drug interaction resources. The results of these interaction checks were tabulated to provide an easy to use tool for clinicians.

The likelihood of a drug interaction was divided into 4 categories:

- No drug interaction identified (Green)
- Theoretical drug interaction - significance unknown (Yellow)
- Known interaction of some clinical significance (Amber)
- Known clinical interaction - avoid combination (Red)

The main interactions identified were:
- CYP450 interactions
- QTc Prolongation

A systematic process was developed to allocate the relative risk of these interactions where there was either conflicting or only indirect information.

## Results

<table>
<thead>
<tr>
<th>Drug Interaction</th>
<th>Drug-Drug Interactions</th>
<th>No interactions identified</th>
<th>Theoretical drug interaction identified but clinical significance unknown</th>
<th>Known drug interaction of some clinical significance</th>
<th>Known drug interaction of highest clinical significance: Avoid combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYP450 Drug Interactions</td>
<td>No CYP450 drug – drug interaction identified,</td>
<td>A theoretical risk of increased / decreased exposure to 5 substrate when combined with 7 inhibitors / 2 inductors</td>
<td>A known risk of increased / decreased exposure to 7 substrate when combined with 9 inhibitors / 2 inductors</td>
<td>A known risk of increased / decreased exposure to 9 substrate when combined with 12 inhibitors / 2 inductors</td>
<td>A known risk of increased / decreased exposure to 12 substrate when combined with 15 inhibitors / 2 inductors</td>
</tr>
<tr>
<td>QTc Prolongation Drug Interactions</td>
<td>No QTc prolongation drug-drug interaction identified,</td>
<td>A theoretical risk of prolonged QTc</td>
<td>A known risk of prolonged QTc</td>
<td>A known risk of prolonged QTc Cases of harm have been reported. Avoid.</td>
<td></td>
</tr>
</tbody>
</table>

To improve the usability of the tool, common advice relating to the interaction or management strategies of the potential effects were referenced within the tool and listed at the end:

- [A] Exercise usual level of caution and monitor combined therapy for potential emergence of signs and/or symptoms of side effects related to increased medication exposure.
- [B] If combination essential, monitor closely for signs and/or symptoms of side effects related to increased medication exposure. A dose modification may be necessary – contact pharmacy.
- [C] Avoid concomitant use. If combination essential monitor closely for signs and/or symptoms of side effects related to increased medication exposure. A dose modification may be necessary – contact pharmacy.
- [D] Exercise usual level of caution applied to medications known to prolong the QT or patient risk factors for QT prolongation.
- [E] If combination essential, consider baseline and serial ECG monitoring. Be particularly cautious with other patient risk factors for QT prolongation (including increasing age, female sex, cardiac disease, and some metabolic disturbances (notably hypokalaemia))
- [F] Avoid concomitant use. If combination essential, consider baseline and serial ECG monitoring. Be particularly cautious with other patient risk factors for QT prolongation (including increasing age, female sex, cardiac disease, and some metabolic disturbances (notably hypokalaemia))
- [G] Concurrent use of medications known to reduce blood pressure may result in clinically significant hypotension and syncope. Monitor BP and caution patient.

## Conclusion

The drug interaction tool has provided a useful resource for clinicians when prescribing psychotropic agents for patients receiving chemotherapy. Further work is now planned to increase the number of chemotherapeutic agents included in the interaction tool and include targeted therapies.

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