

Northern Physicians Organization



NORTHERN
PHYSICIANS
ORGANIZATION

Drug Interactions

Stuart Rockafellow, PharmD
Clinical Pharmacist

May 11, 2017

NPOINC.ORG

Objectives

- ▣ Provide brief review on Drug-Drug interactions
- ▣ Respond to questions about OTC and Drug interactions
- ▣ Practice scenarios

Definitions

▣ OTC

- FDA-approved medication available without Rx
- Manufacturer quality per FDA

▣ Vitamin

- Vitamin available for purchase without or without Rx
- OTC formulations generally not FDA-certified for indication or manufacturer quality

Definitions

- ▣ Herbal supplement
 - Herbal or animal-derived product available without prescription
 - Not FDA-certified for indication or manufacture quality
 - AKA nutraceutical, supplement

Definitions

- ▣ Drug-drug Interaction:
 - When two or more drugs are taken together and the actions of any of them are changed.

Drug Interactions

- ▣ Drug to prescription medication
- ▣ Drug to OTC medication
- ▣ Drug to supplement
- ▣ Drug to disease
- ▣ Drug to food

Drug Interactions

- ▣ Many different rating systems
 - Scaled on basis of severity
 - ▣ Determined by review of evidence in the literature
 - Many inconsistencies

Drug Interactions

- ▣ Examples for Rx Medications
 - Lexicomp
 - Micromedex
 - Facts and Comparisons
 - UpToDate

Lexicomp Interaction Ratings

Risk Rating: Rapid indicator regarding how to respond to the interaction data. Each interact monograph is assigned a risk rating of A, B, C, D, or X. The progression from A to X is accompanied by increased urgency for responding to the data. In general, A and B monographs are of academic, but not clinical concern. Monographs rated C, D, or X always require the user's attention. The text of the Patient Management section of the monographs will provide assistance regarding the types of actions that could be taken. The definition of each risk rating is as follows:

Risk Rating	Action	Description
A	No Known Interaction	Data have not demonstrated either pharmacodynamic or pharmacokinetic interactions between the specified agents
B	No Action Needed	Data demonstrate that the specified agents may interact with each other, but there is little to no evidence of clinical concern resulting from their concomitant use.
C	Monitor Therapy	Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The benefits of concomitant use of these two medications usually outweigh the risks. An appropriate monitoring plan should be implemented to identify potential negative effects. Dosage adjustments of one or both agents may be needed in a minority of patients.
D	Consider Therapy Modification	Data demonstrate that the two medications may interact with each other in a clinically significant manner. A patient-specific assessment must be conducted to determine whether the benefits of concomitant therapy outweigh the risks. Specific actions must be taken in order to realize the benefits and/or minimize the toxicity resulting from concomitant use of the agents. These actions may include aggressive monitoring, empiric dosage changes, choosing alternative agents.
X	Avoid Combination	Data demonstrate that the specified agents may interact with each other in a clinically significant manner. The risks associated with concomitant use of these agents usually outweigh the benefits. These agents are generally considered contraindicated.

Definitions

Severity:



Contraindicated

The drugs are contraindicated for concurrent use.



Major

The interaction may be life-threatening and/or require medical intervention to minimize or prevent serious adverse effects.

Moderate

The interaction may result in exacerbation of the patient's condition and/or require an alteration in therapy.

Minor

The interaction would have limited clinical effects. Manifestations may include an increase in the frequency or severity of the side effects but generally would not require a Major alteration in therapy.



Unknown

Unknown.

Documentation:

Excellent

Controlled studies have clearly established the existence of the interaction.

Good

Documentation strongly suggests the interaction exists, but well-controlled studies are lacking.

Fair

Available documentation is poor, but pharmacologic considerations lead clinicians to suspect the interaction exists; or, documentation is good for a pharmacologically similar drug.

Unknown

Unknown.



Lexicomp Online™ Interaction Monograph

Title ROPINIROLE / Ciprofloxacin

Risk Rating C: Monitor therapy

Summary Ciprofloxacin may decrease the metabolism of ROPINIROLE. Severity Moderate
Reliability Rating Good

Patient Management Monitor for increased effects of ropinirole if ciprofloxacin is initiated/dose increased.



Drug Interactions results - MICROMEDEX® 2.0

Page 1

Drug Interaction Results

Selected Drugs: Cipro (Ciprofloxacin Hydrochloride) , Requip

Severity: All

Documentation: All

Interaction Type: Drug-Drug , Drug-Food , Drug-Ethanol , Drug-Lab , Drug-Tobacco

Drug-Drug Interactions (1)

Drugs:	Severity:	Documentation:	Summary:
CIPROFLOXACIN HYDROCHLORIDE [Systemic] Cipro (Ciprofloxacin Hydrochloride) -- ROPINIROLE HYDROCHLORIDE [Systemic] [Requip]	Moderate	Excellent	Concurrent use of CIPROFLOXACIN and ROPINIROLE may result in increased ropinirole exposure.



Drug Interactions

- ▣ Drug-supplement interactions
 - Often less evidence available
 - Natural Medicines
 - ▣ Comprehensive database that includes collected evidence for efficacy and safety
 - Indications for which the supplement has been used rated on efficacy and safety

Drug Interactions

- ▣ May be much more serious if the medications are prescribed by two or more different physicians.
- ▣ May be more likely if patient uses more than one pharmacy.

Drug Interactions

▣ Duplication

- Drugs have the same effect or an additive effect

- ▣ Example: Aspirin or Plavix + Warfarin

- all can extend the time of bleeding

Drug Interactions

▣ Opposition

- Drugs or supplements have an opposing effect that lowers desired effect
 - ▣ Example: Warfarin + Vitamin K supplement
 - Vitamin K works against warfarin to cause reduced anticoagulation effect

Drug Interactions

▣ Alteration

- Presence of one drug changes how the body absorbs or metabolizes another drug, or through inactivation of medication
- ▣ Can lead to increased or decreased absorption, or have no clinically significant effect

Drug Interactions

▣ Alteration

- Alterations in liver metabolism
 - Diltiazem + atorvastatin
 - Atorvastatin + grapefruit juice
 - Smoking + warfarin
- Alterations in medication/absorption
 - Calcium + levothyroxine
 - Sinemet + protein
- Through the kidneys
 - Aspirin and Vitamin C

Drug Interactions

- ▣ Can be beneficial or harmful
 - May require adjustment of medications
- ▣ Many times “just are...”
 - May be able to dose adjust
 - May not be clinically significant

Other factors affecting Drug Metabolism

- Genetics
- Age
- Nutrition
- Stress
- Liver disease
- Hormones
- And more....

Drug Interactions

- ▣ Other influences:
 - Drug dosing issues
 - ▣ Timing of dose
 - ▣ Other meds taken concurrently
 - Sequence of Administration
 - Route of Administration
 - Duration of Therapy

Questions?

Case 1: “But I bought this over-the-counter!”

LG is a 64-year-old female patient of Dr. Jones who you had been following. She has a previous medical history of hypertension and atrial-fibrillation.

Today, she comes for follow up after discharge from the hospital for a recent bleeding episode.

Case 2: It's a case of the heart

PT is a 52-year-old who has a previous medical history significant for type 2 diabetes diagnosed 14 years ago, hypertension diagnosed 16 years ago, and dyslipidemia diagnosed 14 years ago. He had an MI 6 months ago, but has been doing well, having just completed cardiac rehab. He is in for routine follow up today. He does note that he reported having a hard time achieving an erection over the last few months at his recent cardiologist visit, and the cardiologist prescribed a new medication. He has not used it yet.

Case 3: “We think now is not the right time...”

PP is a 31-year-old who is in for routine follow up. She and her husband have decided to wait to start a family, so she has been back on birth control for a few months now. She wants to make sure that her prescription for birth control pills is current, and she requested a renewal for refills earlier today. She does note that she has been on an antibiotic for a respiratory infection; she thinks it is Augmentin, but is not sure. She has taken this for a couple of days and thinks there is about a week, or 10 days total she is to be on it—she would need to check the bottle and she left that at home. She is a “light smoker” (usually 6-8 cigarettes per day) and only drinks socially, at most once a week on the weekend and would not have more than 4-6 beers at that time. She is interested in talking a little about smoking cessation today, in case they decide to try to get pregnant again.

Her previous medical history includes hypertension, for which she takes Lisinopril 10 mg daily. She watches the salt in her diet, and is an active runner, averaging 210 minutes of running per week.

Case 4: “Dig’ you know, I like to grow foxglove?”

EM is an 84-year-old female who is in today for routine follow up. She notes that she has been having some strange vision changes where everything looks green and yellow, and that she has been kind of nauseated lately. This is new. Her previous medical history is significant for atrial fibrillation and hypertension, and osteoarthritis. She notes that she has been taking a lot of ibuprofen the last few weeks since she has been out in the garden getting ready for the season, and has experienced more pain as a result of that activity. She said she feels like she is doing well with her lifestyle efforts for blood pressure control—she is as active as she can be— and she is only adding salt lightly to foods.