

The Pharm-Assistant
presents



10 INTERACTIONS TO WATCH FOR.

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COMPANY

HISTORY

The Pharm-Assistant Platform has been set up to help health professionals widen their scopes of practice, while also developing confidence, comfort, and competence in their roles. Over the last 3 years I have helped many pharmacists achieve new goals and succeed in more challenging roles within the profession. For more information please visit my website at www.pharm-assistant.co.uk.

I have been mentoring pharmacists since 2018. At first for the Royal Pharmaceutical Society, and since 2021 as an independent mentor with a simple vision in mind.

"I want to help as many pharmacists as possible develop into being the best they can be, EITHER in the role they are in, OR in the role they want to be in."

So if you are someone who is lost and not quite sure what the next step is I urge you to GET IN TOUCH AT:

<https://pharm-assistant.co.uk/need-a-mentor%3F>.



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TYPES OF INTERACTION


Medicines can interact with each other, food, and/or other conditions the patient may have (co-morbidities). When reviewing and prescribing medicines, it's key to keep possible interactions in mind.

If you spot an interaction, there are a few things you can do. Don't jump directly into calling the patient, first ascertain how significant the interaction is, and then determine what action is required.

HOW THIS BOOK HELPS


Throughout this volume, I will be taking you through 10 of the most common interactions you may come across during your day-to-day work. Now, while the examples are specific, the principles behind them and the methods of dealing with them are applicable to a wide variety of scenarios. In this way I hope to help you gain confidence in dealing with drug interactions and having difficult conversations with your patients.

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10 DRUG - DRUG
INTERACTIONS

TO WATCH FOR



INTERACTION 1

CLOPIDOGREL +

OMEPRAZOLE

This interaction is something that you will already have come across and most of you will have dealt with it in the past. But how many of you know exactly why it is so important to spot.

● Interaction Background

Clopidogrel is a pro-drug activated by the enzyme CYP2C19. Omeprazole and Esomeprazole are inhibitors of this enzyme meaning concurrent use can reduce plasma levels of activated Clopidogrel. This can then reduce its ability to protect against future heart attacks and strokes.

● Action Plan

When using PPI's to cover the potential gastric bleeding risks of Clopidogrel, its ideal to use EITHER another PPI (Lansoprazole/ Pantoprazole) OR use a H2 antagonist like Famotidine.

● Prescribing Nugget

There is growing evidence for the increase in Osteoporosis and fragility fractures in patients taking long term PPI. Be mindful of patients who are high risk of fragility fractures, and advise them to use maintenance supplementation of Vitamin D, where appropriate. Patients at risk should have a regular bone profile and Vitamin D blood test done, just in case.

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INTERACTION 2

SIMVASTATIN +

AMLODIPINE

I was a pre-registration student myself when I first came across guidance regarding this interaction. Even today as a locum, I often see these 2 medicines used regularly together.

● Interaction Background

Simvastatin is metabolised by CYP3A4. Amlodipine and Diltiazem are potent enzyme inhibitors of this enzyme, and as such can increase plasma concentration of Simvastatin. This in turn can increase the risk of Simvastatin associated myopathy.

● Action Plan

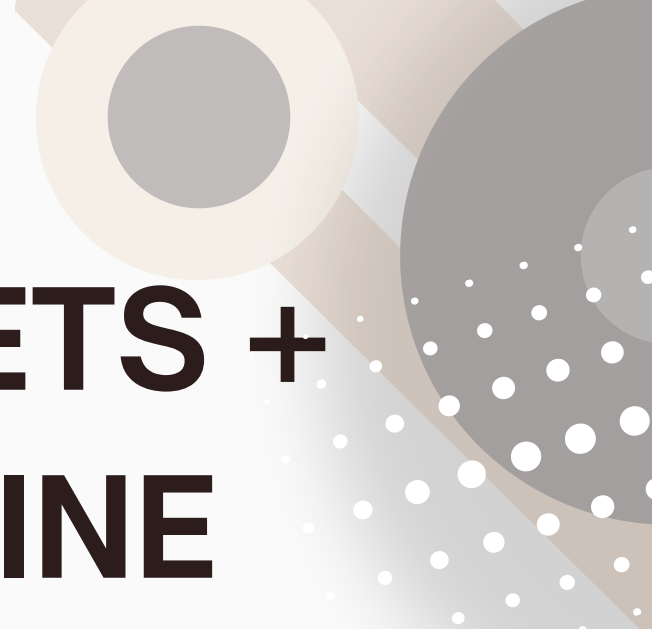
Amlodipine is a first line blood pressure medication in all patients >55 and in patients <55 of Afro-Caribbean descent while also, being of high priority in the treatment of angina. With regards to Simvastatin, it is an older statin and newer statins like Atorvastatin do not interact with Amlodipine. I would therefore switch the Simvastatin to Atorvastatin.

● Prescribing Nugget

When switching statins, be aware of the difference in potencies of statins. To get a dose equivalence it's always worth looking up the statin potencies at:

<https://cks.nice.org.uk/topics/lipid-modification-cvd-prevention/management/lipid-therapy-primary-prevention-of-cvd/>

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INTERACTION 3

IRON TABLETS +

DOXYCYCLINE

This interaction is very common and not that worrisome. It made this list because of how often you will see it, and over look it and how you can, from now on, make sure that you add that little extra value to your patients, and advise them about what to do when using these medicines together.

● Interaction Background

Doxycycline, and other Tetracyclines, readily bind to iron. Once bound they will not be readily absorbed from the GI tract into the blood stream. When taken with iron tablets the amount of absorption and thus the amount of active tetracyclines in circulation can be massively reduced, thereby reducing the antibacterial ability of the tetracycline.

● Action Plan

This is an easy fix. Separating the doses by 3 hours can nullify this interaction. So just ask your patients to take their iron tablet either 3 hours before or after ingesting Doxycycline.

● Prescribing Nugget

Many patients will be buying iron tablets or iron liquid over the counter. It's definitely worth watching out for patients who buy it and potentially alerting, and upskilling your counter staff to this interaction so that they can help reduce the impact of it.

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INTERACTION 4

WARFARIN +

NAPROXEN

This one is both obvious and dangerous, it's also a common one that we try to stop during structured medication reviews. The truth is, one of the main medicines related reasons for admissions to secondary care is due to medicines causing a bleed. That's why, when it comes to anticoagulants, taking the extra few seconds is worth it.

Interaction Background

Warfarin is highly albumin bound in the blood stream (some journals quote up to 99% albumin bound), only unbound warfarin is active. NSAIDS, like naproxen/ibuprofen, and even aspirin can displace some of the protein bound Warfarin and therefore, make more active Warfarin, elongating the anticoagulant effect of the Warfarin, (imagine increasing the unbound Warfarin from just 1% to 2% - THAT IS DOUBLE THE ANTICOAGULATION!!!).

Action Plan

Generally, patients on Warfarin are usually on it because they need to be. Even so it's worth checking if they can be switched to a DOAC which have been shown to have preferable bleeding risk profiles. Try your hardest to avoid prescribing or selling NSAIDS so, these patients while also making doubly sure that there is an actual indication for aspirin or clopidogrel.

Prescribing Nugget

When I see this interaction I aim to stop as many NSAIDS as possible and use alternate analgesia. This is a very frank conversation with the patient explaining to them the risks and managing their expectations. With regards to Antiplatelet, I would discuss with cardiologists first and would only attempt to stop them if the cardiologist agreed.

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INTERACTION 5

PHENYTOIN +

MICROGYNON

Not many patients in your day-to-day practice will take Phenytoin however, this makes this interaction more worrying, and for patients taking Phenytoin and contraceptives can lead to a lot of stress if not managed appropriately.

● Interaction Background

Phenytoin is a potent enzyme inducer and as such will potentiate the effect of cytochrome p450 enzymes on oral contraceptives including, Microgynon. This will increase the rate at which the Microgynon is metabolised by the body and as such will then affect the effectiveness of the contraception provided by the Microgynon. This can then increase the risk of pregnancy.

● Action Plan

There isn't really a good solution here. Phenytoin is really only used when absolutely necessary, and often patients are told to take alternate forms of contraceptives like IUD, depots, or barrier methods.

● Prescribing Nugget

GP records don't always contain every medication that the patient is taking from hospital. Generally Phenytoin will be started by specialist clinics. That is why it is really important when initiating a contraceptive to check all hospital medications with the patient.

REMEMBER - barrier methods of contraception must be used for up to 28 days after Phenytoin has been stopped.

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INTERACTION 6

CLARYTHROMYCIN + SIMVASTATIN

This one is one of the easiest to overlook because, antibiotics are only used acutely. This interaction can be easily forgotten however, there in lies the peril..

● Interaction Background

Clarithromycin can in-fact inhibit cytochrome p450 enzymes, one of these enzymes metabolises Simvastatin. Concomitant use of these medications can in fact lead to a build up of Simvastatin in the body which, can then lead to toxicity and symptoms including muscle wasting and myopathy.


● Action Plan

It's easy to manage, just ask the patient to stop the Simvastatin while taking the Clarithromycin. But remember to tell the patient to restart the statin once the course of antibiotics has finished.

● Prescribing Nugget

Remember why you are prescribing the statin, usually for long term prevention. Short term gaps will not make a big difference to this while the antibiotic will be treating the acute (and currently more important) issue. When dispensing antibiotics always check for interactions with current prescribed medicines and if concerned, contact the prescriber.

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INTERACTION 7

BISOPROLOL +

VERAPAMIL

Most of you will have learned this one at university. It amazes me how many times I have seen it in primary care. To be fair it is not as simple as stopping one medication here.

● Interaction Background

Both Verapamil and Bisoprolol will affect the heart rate and will look to slow this down. Together they can create an additive effect which can in some cases lead to Bradycardia and then a condition known as heart block.

● Action Plan

First and foremost, this will require senior review. The key here is to check with the prescriber who initiated both medications. Verapamil in today's world will likely be initiated by the hospital specialist, and so before stopping anything you should discuss it with the specialist.

● Prescribing Nugget

I'll keep this simple. Remember the NHS is a team effort, you don't need to do everything yourself, and you don't always need to act immediately. If experience has taught me anything, it's that working in tandem with others and getting the right advice first can be the difference between a good or a great clinician.

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INTERACTION 8

DIGOXIN +

DIURETICS

You will see this more often than you would believe. Digoxin is often used in heart failure these days but also, in patients with Atrial Fibrillation. It is generally started by specialists, and only after other medicines have failed to be effective, be aware of it's signs of toxicity.

● Interaction Background

Digoxin toxicity is more likely in patients with Hypokalaemia. As part of how diuretics work they cause a loss of potassium which, can lead to Hypokalaemia, thus this interaction can be quite dangerous for patients.

● Action Plan

In practice you will see diuretics with Digoxin fairly often. This does not mean that we have to stop either of them. What we do need to do is review that both medicines are still indicated, and then monitor the renal function often. When hypokalaemia is present, I would always alert the specialist first and make a joint decision on what action plan is to be taken.

● Prescribing Nugget

Generally with patients on Digoxin, we should be measuring levels and renal function at least annually (I usually do it 6 monthly). As part of your review you should also be able to spot the signs of toxicity, these include: confusion, anorexia, nausea, and disturbance of colour vision.

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INTERACTION 9

ST JOHNS WORT +

SSRI'S

Herbal medicines like St. Johns wort is only really dangerous if the clinicians prescribing medicines are unaware of it. The key to managing this interaction is to make sure you are in the know about what the patient is taking.

● Interaction Background

Both SSRI's and St Johns wort increase serotonin levels. This additive affect can cause a potentially dangerous condition known as serotonin syndrome. This condition would require urgent medical attention.

● Action Plan

The key to making sure that you don't have to face this interaction is simple:

1. Whenever prescribing a medication ask about otc herbal and homeopathic medications; and
2. Whenever selling an over the counter medication make sure that you check what the patient is taking on prescription.

● Prescribing Nugget

Serotonin syndrome is a very serious issue and symptoms of it include: confusion, fever, hallucinations, nausea, loss of muscle coordination, sweating, and shakiness.

I'm not advising you to ask patients not to take herbal medicines, but you must be aware of them, and the possible risks when prescribing and dispensing prescription only medicines.

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INTERACTION 10

METHOTREXATE + TRIMETHOPRIM

Similar to the Simvastatin interaction with Clarithromycin, this interaction will be something that can occur acutely at any time. Patient on Methotrexate will be more likely to be given antibiotics due to the suppression of their immune system.

● Interaction Background

Both of these medicines are antifolate medications. This means that both of them can reduce folate levels. As folate is necessary in the creation of blood cells this can lead to a fall in red and white blood cells.

● Action Plan

The first option is always to use an alternate antibiotic where possible. If not possible, monitor the blood count during concurrent treatment. If there is a significant fall in blood cell counts discuss urgently with haematology and seek advice about the next action plan.

● Prescribing Nugget

The antidote to this is usually adding in folic acid. However, in practice I would always discuss with a haematologist first, if the patient does have symptoms of low folate, such as: fatigue, tongue swelling, headaches, Irritability, sores in mouth, weakness, pallor of the skin, shortness of breath, palpitations and/or lethargy and then send for senior review immediately.

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FINAL THOUGHTS

- Always make sure that you are fully up-to-date with the patients medical history.
- If you are unsure about an interaction with otc or herbal or homeopathic medication, make sure that you check it.
- **DON'T PANIC!!** The answer isn't always to stop a medication, some interactions are necessary risks, but we must make sure we understand how the interaction works and then monitor for it.
- **AWLAYS**, alert the patient to the interaction and advise them of symptoms to watch out for, and what to do if they occur.
- Make sure that you have access to relevant specialists where necessary so, that you are not working in isolation.
- Finally, when reviewing medications, look out for the following:
 - Medicines which do the same thing;
 - Medicines with similar side effects;
 - Medicines which work on the same organs or system;
 - Enzyme inducers;
 - Enzyme inhibitors; and
 - Patients with a history of condition(s) which could be potentiated by a medicines action or side effects.

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THANK YOU **FOR READING**

Let's Grow Together.

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