New medicine service – anticoagulants and antiplatelets

Suggested answers to the activities

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We have developed this learning programme to support your practice in this topic area. We recommend that you use it in combination with other established reference sources. If you are using it significantly after the date of initial publication, then you should refer to current published evidence. CPPE does not accept responsibility for any errors or omissions.

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Learning with CPPE

About CPPE
CPPE offers a wide range of learning opportunities for the pharmacy workforce. We are based in the University of Manchester’s School of Pharmacy and Pharmaceutical Sciences and are funded by the Department of Health to provide continuing education for practising pharmacists and pharmacy technicians providing NHS services in England.

About this resource
This book contains our suggested answers to the activities in our New medicine service – anticoagulants and antiplatelets interactive PDF learning programme. You can view our suggested answers in the PDF. However, we have created this additional document for those who wish to print the suggested answers.
# Answers to the activities

Our suggested answers are given below.

## Page 9

### Your NMS consultations

**Now that the NMS is up and running, what is stopping you conducting more NMS consultations? How are you going to overcome these barriers?**

<table>
<thead>
<tr>
<th>Barriers to NMS</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>No consultation area</td>
<td>Move to a pharmacy that has one. Get one built or installed. Improvise to create a private area.</td>
</tr>
<tr>
<td>No medicines use review (MUR) accreditation</td>
<td>Get MUR accreditation with CPPE or another HEI provider.</td>
</tr>
<tr>
<td>Too few patients</td>
<td>Try advertising or mobilising staff to recognise new medicines at prescription receipt. Contact your local hospital to discuss how they can refer patients to community pharmacy.</td>
</tr>
<tr>
<td>Not enough experience</td>
<td>You’ve got to start somewhere! Do this learning.</td>
</tr>
<tr>
<td>A bit scared to approach patients</td>
<td>Set up a system so that new medicines are recognised by you or a member of staff and automate it as far as possible. Then TALK to your patient.</td>
</tr>
<tr>
<td>GPs are against the idea</td>
<td>Set up a meeting and convince them of the benefits. View the resources on PSNC and CPPE websites, such as the GP detailing card.</td>
</tr>
<tr>
<td>Another pharmacist nearby does them all</td>
<td>There is plenty of opportunity if you get a system set up to recognise new medicines.</td>
</tr>
<tr>
<td>I’m a locum</td>
<td>Then you have more time available to offer these services than employed pharmacists who are concerned with staff and management issues. Help them out and get invited back!</td>
</tr>
<tr>
<td>I don’t know the patients I see</td>
<td>You can soon establish a relationship if you sell patients the benefits of the NMS, even if you don’t complete the three interviews.</td>
</tr>
<tr>
<td>I don’t have time</td>
<td>Pharmacy staff can do more to free you up to do the services that matter to patients. Mobilise them to do this. Undertake CPPE's <em>Skill mix</em> e-learning programme.</td>
</tr>
<tr>
<td>Complicated and confusing payment system</td>
<td>This has been simplified: you will now receive payment for every NMS conducted. The payment system is explained on the PSNC website.</td>
</tr>
</tbody>
</table>
Reflection point

Which medicines fall into the anticoagulants and antiplatelets category?
Which medicines are you most likely to see as new medicines in community pharmacy?

Anticoagulants are listed in section 2.8 of the British National Formulary and antiplatelets in section 2.9. Oral anticoagulants are in section 2.8.2 and include warfarin and phenindione. Three newer agents are also given orally – dabigatran, apixaban and rivaroxaban. Antiplatelets in section 2.9 include aspirin, clopidogrel, dipyridamole and the newer oral agents prasugrel and ticagrelor.

Warfarin and clopidogrel are frequently prescribed members of these groups so have concentrated on these drugs in this learning.

Questions about anticoagulants and antiplatelets

What is the main use of anticoagulants?
To prevent formation or growth of a thrombus in the venous circulation.

What is the main use of antiplatelets?
To inhibit thrombus formation in the arterial circulation.

What is used for the management of venous thromboembolism in pregnancy?
Low-molecular weight heparins.

What does international normalised ratio (INR) measure?
It measures how long the patient’s blood takes to clot compared with a theoretical standard patient not on an anticoagulant who would have an INR value of 1.

What is the mode of action of coumarins and phenindione?
To antagonise the effects of vitamin K₁.
What is the mode of action of dabigatran etexilate?
To inhibit thrombin directly.

What is the mode of action of rivaroxaban and apixaban?
To inhibit activated factor X (factor Xa) directly.

Give examples of glycoprotein IIb/IIIa inhibitors.
Abciximab, eptifibatide and tirofiban.

Task

Is the effect of warfarin possibly enhanced or inhibited by the following medicines and herbal remedies?

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiodarone</td>
<td>Enhances anticoagulant effect</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Reduces anticoagulant effect</td>
</tr>
<tr>
<td>Cimetidine</td>
<td>Enhances anticoagulant effect</td>
</tr>
<tr>
<td>Miconazole</td>
<td>Enhances anticoagulant effect (possible with topical preparations)</td>
</tr>
<tr>
<td>St John’s wort</td>
<td>Reduces anticoagulant effect</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>Enhance anticoagulant effect</td>
</tr>
</tbody>
</table>
Case studies

Page 37 onwards

Warfarin counseling - Wendy

In addition to the normal questions on the interview schedule, what counselling points should you make sure that you cover with Wendy at the intervention interview?

As well as the interview questions for the intervention stage, you should cover the following key counselling points for patients on warfarin, represented by the mnemonic ‘WARFARINISED’:

| W | When to take. Best at teatime so INR checks can inform a dose change next day. |
| A | Alcohol. Anticoagulant effect varies with intake. |
| R | Risk of bleeding as blood clotting takes longer. Refer to accident and emergency if bleeding from nose (for longer than ten minutes), gums (severe), or in stools. |
| F | Follow up. Must get INR checked as directed. |
| A | Aspirin. Avoid, unless prescribed. |
| R | Reason for taking – slows rate of clotting. |
| I | Interactions with drugs (including over-the-counter preparations) and vitamin K-rich foods (eg, leafy greens). |
| N | Notify dentist, nurse and pharmacist, as this will alter other treatment options. |
| I | INR – what is your target? |
| S | Skipped dose – do not miss a dose. If you do, note it, but do not double up. |
| E | End of course – how long will you be on warfarin? |
| D | Dose. Varies depending on INR result. |

Even if Wendy thinks the hospital pharmacist has covered everything, the pharmacist may have missed out something important or Wendy may have forgotten – it is a lot of information to take in at once.

What would you say to Wendy?

You’ve raised some very interesting points there, Wendy. However it is very important to take all your warfarin dose together at the same time every day (about teatime), partly to help you remember to take your medicine but also because you have your INR measured during the working day and the teatime dose gives you the best chance of getting a stable, reliable reading the next day.

http://www.cppe.ac.uk
Clopidogrel counselling – Sandeep

What questions, in addition to those on the interview schedule, should you ask Sandeep at the intervention interview?

As well as the interview questions for the intervention stage, you should consider asking about the omeprazole prescription. Was it because he was having stomach discomfort due to the aspirin he takes? Has he experienced any since? What about since starting the clopidogrel? If he does experience stomach discomfort (and many patients taking clopidogrel do), his doctor may give him another medicine for his discomfort, but it is unlikely that this will be omeprazole as this may have an interaction with clopidogrel, reducing its antiplatelet effect.

What would you say to Sandeep?

It’s only natural to worry about a new medicine, Sandeep, particularly when you read the patient information leaflet. However, clopidogrel has been used very safely and effectively for a number of years now and does a good job in preventing further heart attacks and strokes. It’s well worth persevering with it, particularly as you are not having any problems with it. Why don’t you carry on and see how you get on, then come back in three weeks and let me know? In the meantime, if you feel as though you are starting to have problems again with your stomach or any of the other side-effects that you read about, then please come straight back to see me.

Dealing with anticoagulant adverse effects – Edward

What actions would you take to help Edward with his bleeding nose?

Edward should follow the advice in his Oral Anticoagulant Therapy – Important information for patients booklet. A nosebleed lasting more than ten minutes that does not stop requires medical assistance. You should refer Edward immediately to his GP practice, if someone there is able to attend to him quickly, or to the nearest accident and emergency department.

Which of these medicines could increase Edward’s bleeding risk and what could you do about it?

Edward has several medicines-related factors that would increase his bleeding risk: he is taking warfarin and there are several potential drug interactions in his list of medicines, including the addition of an antibiotic.

It would be prudent to confirm that the co-prescribing of aspirin is intended. Aspirin makes the patient more likely to bleed without an elevated INR, particularly as Edward has probably had a loading dose of amiodarone previous to the maintenance dose. There are a couple of drug interactions to note with amiodarone and the antibiotic. Any introduction or change in dose of these medicines can affect the INR value and the patient’s risk of bleeding.
There are also other factors to consider such as changes in diet, increase in alcohol consumption and, importantly, how he takes his medication. Alternative therapies may also affect the INR and it would be worthwhile asking if he is taking any over-the-counter medicines.

Herbal medicines and warfarin – George

What points could you raise with George during your discussion to help him make a decision as to whether to continue the garlic capsules?

Garlic taken in amounts used in cooking does not interact with warfarin. However, at higher doses (as found in garlic capsules and tablets) it may have an antiplatelet effect. In general, this should not result in the patient’s INR increasing, though it may occasionally increase the risk of bleeding.

You could cover the following points:

- Garlic does not seem to have an important interaction with warfarin.
- Alternative, complementary and herbal medicines have not been studied to the same extent as prescription medicines and therefore there is not much information available about safety and interactions.
- George could continue taking the garlic but needs to watch for signs of bleeding.
- If he decides to stop taking garlic capsules then he needs to tell someone at the anticoagulant clinic as this could alter his next INR reading.
Notes
Contacting CPPE

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