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A component of the Canadian Medication Incident Reporting and Prevention System (CMIRPS).

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Consumer Identifies Warfarin Error as the Cause of Unexpected Test Results

Warfarin is a commonly prescribed medicine that is used to prevent blood clots. Each patient's dose of warfarin must be chosen and monitored carefully. The dose must be high enough to prevent clots, but low enough that it does not cause bleeding. This is why patients taking warfarin need to have regular blood tests, called INR tests (see text box on page 2). The doctor uses the INR results to monitor how well the warfarin is working. If the INR is too low, the doctor will increase the dose of warfarin. If the INR is too high, the doctor will reduce the dose of warfarin. In some offices or clinics, pharmacists or nurses may also monitor patients' INR levels and adjust warfarin doses. Doctors sometimes prescribe warfarin tablets of different strengths for a patient, to make dose changes easier for the patient.

ISMP Canada has received a report of a case in which a patient found a medication error involving warfarin. The patient had prescriptions for two different strengths of warfarin: 1 mg tablets and 5 mg tablets. The doctor told the patient to take one 5 mg tablet every day for 5 days, and then to have an INR test. The INR result was too low, so the doctor told the patient to increase the daily dose of warfarin to 7 mg (one 5 mg tablet and two 1 mg tablets). The next INR result was much too high, so the daily dose was reduced to 3 mg (three 1 mg tablets). Strangely, the result of the next INR test was even higher. The patient was told to stop taking the warfarin altogether, to allow the INR to fall to a safe level. The doctor then restarted the warfarin, but at a very low dose: 0.5 mg daily. The patient took just half of a 1 mg tablet every day, and the INR was checked again after 2 days and 4 days. Both times, the INR result was in the correct range.

Later, when cutting a tablet in half for another dose of 0.5 mg, the patient noticed that it was marked with the number 5. The patient then checked the tablets in the bottle labelled as" warfarin 5 mg" and found that they were marked with the number 1. The patient became suspicious that the labels on the pill bottles had been switched. The patient visited the pharmacy where the prescriptions had been filled. One of the staff confirmed that a medication error had occurred. The container labelled as "warfarin 1 mg" actually contained warfarin 5 mg tablets, and the container labelled as "warfarin 5 mg" actually contained warfarin 1 mg tablets. This mistake led to the unexpected blood test results.

This case is a good example of how a consumer's awareness and actions helped to avoid harm from an error. Fortunately, the doctor was checking this patient's INR results frequently. The doctor was able to act quickly when the INR result became too high, and the patient did not experience any bleeding problems. The doctor was surprised by the INR results, but many things can affect how warfarin acts in the body, and the possibility of a labelling problem wasn't considered. This case is a reminder that when unexpected INR results cannot be explained by other factors, the possibility of a medication error should be considered.

If you are taking warfarin, here are some suggestions to help prevent an error.

- Know what dose of warfarin you are expected to take, and write it down.
- When you pick up your warfarin prescription, ask the pharmacist for instructions on how to take the required dose. This is especially important if you have to take more or less than one tablet at a time to get the correct dose.
- Check the tablets inside every prescription container to be sure they match the label. Warfarin tablets are marked to show the strength.
- Take your dose of warfarin at the same time every day.
- Follow instructions about going for blood tests (INR tests).
- Keep a record of any telephone calls about changing your warfarin dose. Write down the date of the call, the new dose and other instructions. Having one place where you write this information (such as a booklet) can be helpful.
- If you are expected to use the warfarin tablets you have at home, tell your health professional the strength of the warfarin tablets that you have and ask how to get the correct dose using the tablets on hand. As a double check, state back your understanding of the instructions, using your written record as a guide. If the instructions sound too complicated, ask if you should have a different tablet strength.
- You may be told to stop taking warfarin until the next INR test. If this happens, go for the INR test at the scheduled time and wait for instructions about your new dose. If you have not received new dose instructions within 24 hours after the test, call the doctor's office or clinic.
- Many things change how warfarin works in the body. For example, some medicines, alcohol, and foods can increase or decrease the effects of warfarin. Consult with your doctor, pharmacist or nurse before purchasing or taking any new medicines, including over-the-counter medicines (medicines that you can buy without a prescription) and natural health products such as herbal products, vitamins and supplements. You should also let them know about any recent changes in your diet or your use of alcohol. This information will help them to interpret your INR results correctly.

Ask your doctor, pharmacist or nurse for information about the medicines, health products, and foods that affect how warfarin works in the body. Information is also available on the Health Canada website at: http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/med/warfarin-eng.php

INR stands for International Normalized Ratio and is a measure of how long it takes for a person's blood to clot. Warfarin doses are adjusted to keep the INR within a target range. If the INR is too high, there is a risk of bleeding. If the INR is too low, the warfarin may not have the desired effect and blood clots may occur.

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