FOCUS ON ERROR PREVENTION

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ERRORS INVOLVING ORAL METHOTREXATE

There are a number of drugs with an increased risk of causing significant patient harm when taken incorrectly. Due to its unique dosing schedule and potential toxicity, methotrexate is an example of such a high risk drug. There have been a number of fatalities reported from errors involving oral methotrexate[1]. Pharmacists must therefore be extra vigilant when dispensing high risk drugs such as methotrexate.

CASE:

A seventy-eight year old male patient whose medical history includes chronic kidney disease (stage 4), hypertension and prostate cancer receives his medications from a local community pharmacy in compliance packaging.

The patient was seen by his nephrologist and the medication metolazone 2.5 mg was added to his regimen to be taken orally once daily on Mondays, Wednesday and Friday for diuresis.

In error, the pharmacist at his regular pharmacy dispensed methotrexate 2.5 mg with the instructions to take one tablet orally once daily on Monday, Wednesday and Friday. These methotrexate tablets were added to the patient's existing medications and dispensed in a blister pack.

Two weeks later, the patient presented to the hospital with complaints of bright red blood per rectum and fatigue. On examination in the emergency department, the patient was found to have significant oral ulcers, agranulocytosis (white blood cell count 1.2 x 109/L, neutrophils 0.77 x 109/L, lymphocytes 0.29 x 109/L and platelets 16 x 109/L), melena stools (hemoglobin 61 g/L) and mild hepatotoxicity (AST 46 U/L, ALT 69 U/L). The patient was admitted to hospital for treatment of what was diagnosed as methotrexate toxicity.

The error was detected by a pharmacy student and hospital pharmacist upon admission during the best possible medication history interview and medication review. During the medication review, the pharmacy student and pharmacist noted many indicators that methotrexate was odd.

1. The patient had no past medical condition to indicate a need for methotrexate.
2. The methotrexate was prescribed by a nephrologist.
3. The dose was inconsistent with the usual dosing frequency for methotrexate.
4. The patient reported that his nephrologist informed him the new medication was a diuretic.

The dispensing error was confirmed with the patient's nephrologist and the patient's community pharmacy who acknowledged that the prescription was indeed written for metolazone.

The patient was treated in-hospital with leucovorin, packed red blood cells and platelet transfusions. Two weeks later, the patient was discharged with full resolution of oral ulcers, agranulocytosis, and hepatoxicity.

POSSIBLE CONTRIBUTING FACTORS:

- The dispensing pharmacist failed to identity the inappropriateness of methotrexate for the patient.
- METolazone and METhotrexate have similar looking names especially if the prescriber's handwriting is illegible.
- Both metolazone and methotrexate are available as 2.5 mg oral tablets.
- Patient may not have been comprehensively counseled on the indication for methotrexate and its associated adverse effects.

RECOMMENDATIONS:

- When dispensing methotrexate, ensure that the indication for use and dosage is appropriate. Contact the prescriber to confirm the indication if necessary.

- Ensure that the patient receives and fully understands key information about methotrexate. At a minimum, this information must include the name of the medication, purpose for using, the dosage, potential side effects, and the danger of taking too much. Ask the patient to repeat the information to ensure it is fully understood.
- Provide additional information in written form whenever possible and highlight key information including the dosing schedule.
- Establish a system to ensure the patient receives this important information before the medication leaves the pharmacy.
- It would be good practice to follow up with these patients to ensure they are taking the medication appropriately and are not experiencing any adverse effect. Pc

Please continue to send reports of medication errors in confidence to Ian Stewart at: ian.stewart2@rogers.com .

Please ensure that all identifying information (e.g. patient name, pharmacy name, healthcare provider name, etc.) are removed before submitting.

REFERENCES

1. Acute Care- ISMP Medication Safety Alert, April 3, 2002.

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