

ISMP Canada Safety Bulletin

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Multi-factorial System Problems Lead to a Chemotherapy Mishap

The following event involving a chemotherapy error in a hospital was shared with ISMP Canada:

A patient received 5.5 mg Raltitrexed (Tomudex®) in February of this year as a first cycle of chemotherapy treatment. The physician's written order for the next scheduled cycle of treatment three weeks later read:

"Chemotherapy: Tomudex 5.5 mg IV"

"Follow-up: Return to Clinic in three weeks with CBC and differential and creatinine."

A clerk inadvertently transcribed the order on the Medication Administration Record (MAR) as every week for three weeks and then scheduled three weekly visits for the patient. These visit dates were also recorded on the Doctors' Orders sheet. The visit dates were interpreted and entered by the pharmacist as drug administration dates. Multiple checks by nurses and pharmacists failed to catch the transcription error and subsequent order entry error. Blood work was done each week and three treatments were administered to the patient before the error was discovered, while performing the monthly billing process. Patient intervention included monitoring a low neutrophil count and holding chemotherapy until the blood counts recovered. Of interest was the patient's response to the news of the error. He had noticed the discrepancy between what he was told by the physician and what was administered, but assumed the treatment frequency was correct.

The hospital identified several contributing factors:

- Frequency not indicated on physician order
- Transcription review by nurse did not identify divergence from standard treatment protocol
- Order entered by pharmacist did not identify divergence from standard treatment protocol
- Lack of knowledge of chemotherapy protocols
- Inadequate dose/schedule checking function within the pharmacy computer systems

The following suggested system safeguards can be used to prevent a similar error:

1. Use a standardized order format that includes a requirement for chemotherapy protocol information. The review and verification of a chemotherapy order requires clear information on the intended chemotherapy protocol being prescribed. Both the dose and treatment schedule are equally important components of the chemotherapy order and its review process.
2. If a pharmacist or nurse is not familiar with the protocol, the physician should be asked to provide peer-reviewed publications that document the dose and schedule regimen. This information can then be kept readily accessible in the pharmacy and nursing areas, as well as in the patient profile and health record.
3. The standardized order format should require documentation of the cycle #, patient age, weight, and BSA. In addition, the order should include the full generic drug name, dose (and dose calculation) to be administered, route of administration, frequency and administration guidelines. Lab tests, hydration fluids and anti-emetic orders should also be included.
4. The pharmacy computer system, or the computerized physician order entry system, should have pre-defined protocol information and built-in maximum dose alerts.
5. Checking each dispensed item against the original order can help prevent repeated dispensing errors. Some hospitals have implemented an independent check by a second pharmacist for chemotherapy orders, prior to dispensing.
6. A system generated, computerized MAR can obviate the need for error-prone manual transcription. An independent, documented check by a nurse adds another layer of safety to the MAR.
7. Advocate for strengthening team communication and ensure ongoing efforts to maintain a strong rapport. Open discussion about errors (institution specific and outside errors) and 'near-misses' as an agenda item at team meetings, will help engender a culture of safety.

8. Tell patients exactly what is supposed to happen and encourage them to ask questions if anything appears different. Providing written information, in addition to the verbal information, is helpful. Patients can be an effective last line of defense against any medication or treatment error.

At a recent international conference¹, Dr. Robert Dorr provided these words of wisdom when discussing the healthcare environment, the time pressures we can experience and the need to take more time: “If unsure or unclear – stop,

and question to the top”. “There are very few true oncologic emergencies”. “A delay in chemotherapy administration is almost never life-threatening”.

Chemotherapy drugs are highly toxic, dose ranges are narrow and errors can be serious. Since chemotherapy errors can occur in any one of the stages - prescribing, interpretation, dispensing, administration or monitoring – the reader is provided with further reading²⁻⁵ on the subject, should more comprehensive recommendations for chemotherapy safety be desired.

References:

1. Dorr R. Speaker: 2002 Chemotherapy To Do List: Expert Advice. Prevent Adverse Drug Reactions, Presented at the ASHP MidYear Clinical Meeting. Decemer 3, 2001.
2. Beckwith MC, Tyler LS. Preventing Medication Errors with Antineoplastic Agents, Part 1. *Hospital Pharm* 2000; 35: 511- 523
3. Beckwith MC, Tyler LS. Preventing Medication Errors with Antineoplastic Agents, Part 2. *Hospital Pharm* 2000, 35: 732- 747.
4. Goldspiel BR, DeChristoforo R, Daniels CE, A continuous-improvement Approach for Reducing the number of Chemotherapy-related Medication Errors. *Am J Health-Sys Pharm* 2000; 57 Suppl 4: S4-S9.
5. Ogletree RL Preventing Medication Errors in Oncology. *Hospital Pharmacist Report* 2001; 15: 47-52

ISMP Canada is a national voluntary medication incident and ‘near miss’ reporting program founded for the purpose of sharing the learning experiences from medication errors. Implementation of preventative strategies and system safeguards to decrease the risk for error-induced injury and thereby promote medication safety in healthcare is our collaborative goal.

To report a medication error to ISMP Canada: (i) visit our website www.ismp-canada.org or (ii) email us at info@ismp-canada.org or (iii) phone us at 416-949-4839. ISMP Canada guarantees confidentiality and security of information received. ISMP Canada respects the wishes of the reporter as to the level of detail to be included in our publications.