Oral Antineoplastics in Nononcology Units: Moving Toward Safer Ordering, Administration, and Handling

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About 25% of all chemotherapy agents prescribed for patients with cancer are oral formulations. As a result, more patients in the acute care setting and tertiary care settings are receiving oral chemotherapy agents on nononcology units. This creates concerns about safe handling for patients, caregivers, and staff.

O
tal antineoplastic agents are steadily becoming more prevalent in cancer treatment (Hafldanarson & Jatoi, 2010). Because the products appear similar to ordinary oral medications, patients and healthcare workers are sometimes unaware of the significant safety hazards posed by oral antineoplastics (Trovato & Tuttle, 2014). This safety challenge exists not only in the home, but also when patients are admitted to nononcology units where staff members may not have been trained in the proper ordering, handling, and administration of oral antineoplastics.

The publication of the 2013 updated American Society of Clinical Oncology (ASCO)/Oncology Nursing Society (ONS) chemotherapy administration standards (Neuss et al., 2013) provides an opportunity for hospitals to standardize the administration of oral antineoplastics on nononcology units. By doing so, they can help fulfill the Joint Commission’s goals for improving the safety and quality of hospital care (Joint Commission, 2006).

At the 504-bed Overlook Medical Center in Summit, NJ, nursing, pharmacy, and physician leaders have used the updated ASCO/ONS standards as the basis for a thorough overhaul of procedures for oral antineoplastic administration on nononcology units. At the medical center, as at many others, this is a significant and growing challenge. In January 2014, for example, 13 patients received a total of 50 oral chemotherapy doses in the medical center’s nononcology units, including neurology, psychiatry, orthopedics, cardiology, cardiac care, and intensive care. An estimated 82 nurses were exposed to those 13 patients, and the number of other staff members (e.g., patient care technicians, physicians, respiratory therapists, transporters, physical therapists) who also were potentially exposed is difficult to quantify.

Updating Procedures

In the spring of 2013, a committee of nursing, pharmacy, and physician leaders at the medical center began to design a new standardized system for ordering, administering, and handling antineoplastics on nononcology units. They wanted to ensure that all of the practices throughout the medical center consistently conformed to the updated ASCO/ONS standards. The process was arduous and involved several disciplines. In the end, rather than creating a new policy solely for oral antineoplastics, two of the medical center’s existing policies were amended: safe handling of antineoplastics and administration of antineoplastics.

The first question the team wanted to address was which medications count as antineoplastics. Before the updated ASCO/ONS standards, frequent disagreements arose about that topic at the medical center. If a patient’s home medication list included erlotinib, for example, physicians would sometimes order it on a standard form rather than a specialized chemotherapy order form. If challenged, they might state, for example, “It is not chemotherapy; it is a targeted agent.” No set policies or clear guidelines for practice were in place.

The updated ASCO/ONS standards helped clarify procedures. The committee chose to adopt the ASCO/ONS standards’ broad definition of medications that require special procedures: “targeted agents, alkylating agents, antimetabolites, plant alkaloids and terpenoids, topoisomerase inhibitors, antitumor antibiotics, monoclonal antibodies, and biologics and related agents” (Neuss et al., 2013, p. 6s). The only anticancer therapies excluded from the ASCO/ONS definition are hormone therapies.

After resolving that question, the committee devised a system for ensuring that oral antineoplastics are ordered appropriately when patients are admitted to nononcology units. The group determined that the pharmacy department would assume the monitoring role for oral chemotherapy orders. All antineoplastic drugs,
as defined by the ASCO/ONS standards, are now blocked from the electronic ordering system, and an alert is activated that requires the prescriber to use the appropriate chemotherapy order form. If the prescriber is not an oncologist, she or he must contact the patient’s oncologist to verify that the patient should continue the drug while in the hospital (i.e., “Is the reason the patient is in the hospital related to toxicity?” “Should the dose be held or reduced?”). Once the pharmacy has verified that the patient is to receive the drug and the appropriate orders are written and consent has been obtained, the drug is profiled in the computer for administration by the nurse. Like all chemotherapy, oral agents must be verified by chemotherapy-certified nurses prior to administration of the first dose. When oral antineoplastics are ordered on nononcology units, a chemotherapy-certified nurse from the oncology unit will typically be called to the unit to review the order before the first dose is given (see Figure 1).

Finally, the committee wanted to establish procedures to ensure safe handling of oral antineoplastics by all staff members on all units. Despite the oncology staff being well versed in safe handling of IV chemotherapy, they were not as proficient in the handling of oral agents. The risk of exposure to oral chemotherapy has not been studied (Moody & Jackowski, 2010), but it has been proven that dust released from oral agents is a potential source of exposure (Griffin, 2003). Therefore, the new procedures have specified several principles of safe handling. Staff should wear chemotherapy-tested gloves when handling oral antineoplastics. When opening a blister pack to place it in a medication cup prior to administration, an N-95 mask should be worn to prevent inhalation of aerosolized drug. All waste—blister packs, gloves, masks, and medication cups—should be placed in a zippered plastic bag and placed in a chemotherapy waste container for disposal. On the nononcology units, the nurses are to place the zippered bag of waste in a receptacle for pharmacy staff to pick up and dispose of appropriately.

Once the policies were revised and reviewed by various disciplines, including risk management, pharmacy, nursing, the physicians, and the oncology adult practice committee, it was time to begin education. Because oral chemotherapy could be prescribed anywhere in the medical center, all nurses needed to be educated (see Figure 2). The best way to accomplish this was by educating the unit educators. At the monthly nursing education meeting, the key points were covered with the unit educators. If the drug is new for the patient, an oncology nurse (either the nurse educator or the charge nurse) must be called to the unit.

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**Case Study**

J.D. is a 75-year-old man with advanced non-small cell lung cancer. He fell on the ice outside his home while taking out the garbage and broke his left femur. He was admitted to the orthopedic floor. When reconciling his medications, the nurses note that J.D. is taking erlotinib for his lung cancer. In this situation, the hospital’s revised policies give specific responsibilities to various disciplines.

**Step 1**

*Pharmacist*

The pharmacist recognizes that erlotinib has been ordered (perhaps by a practitioner other than an oncologist). The pharmacist contacts the attending physician who will verify with the oncologist whether J.D. should be continuing the medication.

*Orthopedic nurse*

The orthopedic nurse completes medication reconciliation with J.D..

**Step 2**

*Oncologist*

The oncologist verifies that J.D. is to continue to receive erlotinib. He or she writes an order on an oral chemotherapy order form and obtains consent.

*Pharmacist*

The pharmacist ensures that the order is written on an oral chemotherapy order form and that consent is obtained.

*Orthopedic nurse*

The orthopedic nurse will notify the oncology unit that an order for oral chemotherapy has been placed.

*Oncology nurse*

The oncology nurse verifies that the order is written correctly and that consent is obtained. If the order states that the patient may take his own medication brought from home, the nurse sends the drug to the pharmacy for verification. The oncology nurse also ensures that J.D. is knowledgeable about the drug he is receiving.

**Step 3**

*Oncologist*

The oncologist evaluates J.D. for untoward side effects.

*Orthopedic nurse*

The orthopedic nurse notifies the oncology nurse when the drug is to be administered and performs a double check with the oncology nurses. The orthopedic nurse administers the drug, following the safe-handling guidelines, and disposes of waste appropriately. In addition, he or she writes chemotherapy precautions to be followed on the shift-to-shift report and on the interdisciplinary care plan, educates ancillary staff about safe handling of excreta, and ensures that J.D. gets back his drug at the time of discharge.

*Oncology nurse*

The oncology nurse ensures that appropriate personal protective equipment (PPE) is available and educates the orthopedic nurse on safe handling. The oncology nurse also completes a double check with the orthopedic nurse (e.g., drug, dose, patient name, account number) and observes the nurse don PPE, dispense drug into a medication cup, administer medication to J.D., and dispose of all items in a zippered bag. The oncology nurse ensures that waste is placed in an appropriate area for disposal by the pharmacist; ensures that all staff on the unit know that the patient is receiving chemotherapy, and that excreta requires safe handling; and educates the orthopedic nurse about potential adverse reactions to the drug.

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**FIGURE 1. Interdisciplinary Process for When Chemotherapy Is Ordered on a Nononcology Unit**
Initial education
The oncology nurse educator provides training and information for unit educators.

Nononcology staff education
Unit educators provide education for their staff, including patient care technicians.

Safe handling by nononcology nurses
The oncology nurse coaches on proper handling and disposal

Bedside verification
The oncology nurse performs a double check with the nononcology nurse for the first dose (also done subsequently with another nononcology nurse).

Excreta management
The oncology nurse reinforces this with the nononcology nurse, who, in turn, reinforces it with ancillary staff.

Pharmacy staff
The pharmacy staff provides a list of exclusions for staff (all hormone agents). In addition, they complete a process of verification with the prescriber and obtain the order on the appropriate form.

Reinforcement
An annual review is conducted with staff as part of training (an online module).

FIGURE 2. Competency Process to Ensure Safe Handling

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The oncology nurse provides training and information for unit educators.

Nononcology staff education
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Conclusion
Providing a safe environment for the patient with cancer receiving oral chemotherapy and for the staff caring for the patient requires continued education for all disciplines: pharmacy, nursing, patient care technicians, and physicians, both oncology and nononcology. After the first year of the program, an annual competency review will be necessary to ensure a safe environment for all.

References


Do You Have an Interesting Topic to Share?
Safety provides readers with information on safety issues affecting patients with cancer and those caring for them. Length should be no more than 1,000–1,500 words, exclusive of tables, figures, insets, and references. If interested, contact Associate Editor David Glenn, RN, MS, at david.glen@umaryland.edu.