Administering Chemotherapy in Nononcology Settings: A Case Study

Nancy Smith, MS, RN, OCN®

Providing chemotherapy for patients in a variety of settings may be a challenge for oncology nurses. Increased acuity and comorbidities of patients needing chemotherapy have resulted in a greater incidence of administration in nononcology settings, such as intensive care units (ICUs). In addition, patients with conditions other than cancer are receiving chemotherapy. Because of a lack of certified and experienced chemotherapy nurses in the ICU, oncology nurses may be pulled from their unit to administer chemotherapy. Another possibility is that nonchemotherapy-certified nurses may be asked to administer chemotherapy. Caring for patients receiving chemotherapy may be stressful for nononcology nurses because of their lack of knowledge regarding chemotherapy precautions and the management of side effects and toxicities. Not only is coordination and cooperation between nursing personnel vital, certified oncology nurses must be able to assess the situation, provide the necessary information and education, and safely administer the chemotherapy. This article describes a case study and provides suggestions for planning in similar situations.

Case Study

D.B., a 46-year-old woman, was admitted to the ICU with acute SLE nephritis. The day following her admission, the nephrologist ordered a dose of cyclophosphamide to be given over four hours following plasmapheresis. The oncology unit was notified and one of the oncology nurses went to the ICU to evaluate the situation and determine, along with the ICU nurse, the best course of care. When the oncology nurse went to the ICU, D.B. was undergoing plasmapheresis. The nurses and pharmacist chose a time to administer the chemotherapy. Then, the oncology nurse went to the ICU, D.B. and her family, discussed the plan of care. The situation required flexibility and cooperation on the part of the ICU and oncology nurses to provide optimum care for the patient. The situation provided an excellent opportunity for the oncology and ICU nurses to collaborate, set mutual goals, provide education for the patient and family, and develop a plan of care.

Patients are receiving antineoplastic and immunomodulatory agents for noncancer diagnoses more frequently, primarily for autoimmune diseases. More than 80 autoimmune diseases have been identified, affecting an estimated 15–24 million people in the United States (National Institutes of Health, 2005). Antineoplastic and biotherapy agents are used in the treatment of several autoimmune diseases, including multiple sclerosis, rheumatoid arthritis, antineutrophil cytoplasmic antibody–associated vasculitis, and systemic lupus erythematosus (SLE) (Petri, 2004). Those patients are being treated primarily in cancer and infusion centers, but occasionally their conditions may be acute, requiring emergency treatment. Often, these patients are in intensive care units (ICUs) or other inpatient floors that may not have nurses certified in oncology or chemotherapy and biotherapy, which poses a challenge for all involved in their care.

Autoimmune diseases are characterized by an abnormal and inappropriate response of the immune system that results in antibodies destroying the body’s own cells, tissues, and organs. SLE is a multisystem, autoimmune, connective tissue disorder, mediated by B and T cells. SLE may present with a wide range of clinical manifestations, including renal involvement. Cytotoxic agents have been used to treat SLE since 1947, and cyclophosphamide is the cornerstone of treatment for severe SLE. The clinical pharmacology of cyclophosphamide makes it an excellent immunomodulatory agent for the treatment of autoimmune diseases (Gladstone et al., 2002). High-dose IV cyclophosphamide therapy has resulted in significant improvements in this potentially life-threatening disease (Dussán, Magder, Brodsky, Jones, & Petri, 2008). Dosages may be based on milligrams per kilogram, not on body surface area (D’Cruz, 2002).

In the following case study, a patient was admitted for acute SLE nephritis. The situation required flexibility and cooperation on the part of the ICU and oncology nurses to provide optimum care for the patient. The situation provided an excellent opportunity for the oncology and ICU nurses to collaborate, set mutual goals, provide education for the patient and family, and develop a plan of care.

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As often happens in hospitals, plans went awry. When the oncology nurse returned, she discovered that the plasmapheresis was interrupted 90 minutes early because of mechanical failure. A new machine had been ordered from an outside facility, requiring inspection by the engineering department upon arrival and, therefore, a delay in care. It became increasingly unclear when the plasmapheresis would be completed. The physician was notified and apprised of the situation. Because D.B. was scheduled for dialysis the following day, the chemotherapy could not be postponed. However, the setback provided the oncology nurse ample time to teach D.B. and her family about cyclophosphamide and its action, side effects, and chemotherapy precautions. The oncology nurse also had time to talk with the ICU nurse; provide her with information about the drug, and discuss how she could best care for D.B. during and after the infusion. They also discussed the use of mesna and the role of antiemetics after chemotherapy, as well as chemotherapy precautions. Another certified chemotherapy and oncology nurse came to the ICU to review the order and calculate the dose, providing the second check. Later in the day, D.B. received the cyclophosphamide without incident.

In this hospital, as in others across the country, a gray area exists regarding patients receiving chemotherapy in locations outside designated oncology units. In this case, several ICU nurses had taken the Oncology Nursing Society’s (ONS’s) chemotherapy and biotherapy course, but had limited experience administering chemotherapy. Although the order for cyclophosphamide appeared to be straightforward, the staff saw that having experienced and certified oncology nurses involved in D.B.’s care would be best.

For example, the order was written without documentation of the reference dosage or the necessary dose reduction for D.B.’s decreased renal function. The oncology nurse called the physician to clarify those items and educated the ICU nurses on the importance of having a complete order to verify the correct dose.

Then, although the premedications were given by the ICU nurse through the peripheral IV without incident, the oncology nurse felt uncomfortable giving chemotherapy through that line. The IV had been started more than 24 hours earlier in the emergency department and was located in D.B.’s left antecubital area. The blood return was slow, and the oncology nurse thought D.B.’s upper arm felt “full” and “boggy.” The situation was questionable enough that the oncology nurse started a new IV in the opposite arm, following ONS guidelines (Polovich, Whitford, & Olson, 2009). Although the oncology nurse did not stay in the ICU continuously during the four-hour infusion, she did check on D.B. frequently. During the next shift, another chemotherapy and biotherapy-certified oncology nurse returned to complete the infusion and ensure D.B. was doing well.

**Implications for Nursing Practice**

This experience provided an excellent opportunity for oncology nurses to collaborate with and educate ICU nurses in regard to proper administration of chemotherapy. It demonstrated that administration of chemotherapy requires a high level of competency, just as with administering other potent medications. It also validated the importance of certified oncology nurses being willing to go to other units to administer chemotherapy. By supplementing the knowledge base of ICU nurses, oncology nurses can promote continuity of care for critically ill patients receiving cytotoxic agents. For example, sharing information and educating ICU nurses on chemotherapy precautions, symptom management, myelosuppression, and oncologic emergencies can result in improved patient care by establishing mutual goals and plan of care. Collaboration between oncology and ICU nurses also can result in less psychological distress for the ICU nurses and improve relationships between the two groups (Hull & O’Rourke, 2007). The outcome of this experience was positive and satisfying for the oncology and ICU nurses and, ultimately, the patient received the best care because of their collaboration.

**Conclusion**

In conclusion, inpatient and outpatient oncology nurses may find themselves asked to administer chemotherapy to patients on nononcology units. Although patients may not have cancer, they still require education regarding the drug(s) they may receive to treat their condition. Nurses working in nononcology units...
also may require education because the oncology nurses may be present only to administer the chemotherapy drug. Nononcology nurses need to be aware of side effects and toxicities, symptom management, laboratory tests to monitor, personal protective equipment, and chemotherapy precautions, including disposal of equipment. The oncology unit staff must execute a plan to cover patients requiring chemotherapy in other units and be able to coordinate the care of these patients around procedures and other treatments they may require (see Figure 1).

To better address this issue, the author’s institution recently opened a universal-bed oncology unit. The concept behind the unit was that patients would stay on the unit even if their acuity changed. The unit includes four ICU beds and 16 general beds, including telemetry. Several nurses were hired onto the unit with critical care, ICU, and bone marrow transplantation experience. The goal is to cross-train the nurses to be able to provide care to patients regardless of their acuity.

Author Contact: Nancy Smith, MS, RN, OCN®, can be reached at nancyl.smith@baylorhealth.edu, with copy to editor at CJONEditor@ons.org.

References


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