Immunotherapy Administration

Oncology Nursing Society recommendations

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Although many unknowns about immunotherapies exist, the base of literature on administration considerations, anticipated side effects, and treatment strategies for immuno-oncology is broadening. However, little has been published regarding evidence-based administration and safe-handling procedures. Nurses may be administering immunotherapeutic agents possibly for the first time in their practice. This article presents a summary of recommendations based on Oncology Nursing Society (ONS) guidelines for practice and the anecdotal experiences of professionals at cancer centers with various backgrounds in immunotherapy administration. ONS is committed to following trends regarding immunotherapeutic agents to provide timely recommendations and guidelines based on the best evidence available to support institutional policies and procedures and the healthcare professionals administering immunotherapy.

Education and Competencies

ONS’s position on the education of nurses who administer and care for individuals receiving chemotherapy and biotherapies is that they hold fundamental knowledge of the agents being received by patients, including, but not limited to, mechanisms of action, pharmacologic and administration principles, indications for treatment, expected toxicities and adverse events, assessment and management recommendations, and a process to ensure patient safety (ONS, 2015). The same position holds true for immunotherapy agents. ONS recommends that nurses have a fundamental knowledge of the class of immunotherapy the patient is receiving, as well as knowledge of specific agents and protocols to follow, and apply this knowledge to administration and monitoring for efficacy and adverse events during the treatment trajectory. Similar to processes for defining and maintaining chemotherapy competence, institutions involved in immunotherapy administration must determine what educational programs and competencies will be required of nurses and healthcare practitioners working with patients receiving these agents and build these competencies into existing policies and procedures.

The importance of a fundamental knowledge of immunotherapy becomes critical when considering the highly unique and life-threatening complications associated with immunotherapeutic agents such as checkpoint inhibitors, interleukins, oncolytic viruses, and chimeric antigen receptor (CAR) T-cell therapies (Maude, Barrett, Teachey, & Grupp, 2014; Tyre & Quan, 2007). In addition, the immunotherapy-related side effect of diarrhea is managed very differently from diarrhea caused by traditional cytotoxic chemotherapy. Although it may be difficult to obtain side effect information on investigational agents, nurses must be aware of available drug information, and...
report any new or unusual side effects in a timely manner to help build a side effect profile for immunotherapy agents.

**Administration Principles**

To date, multiple classes of immunotherapy agents are currently either approved for clinical use or are deeply vetted in clinical trials. Routes of administration for immunotherapy agents vary from oral agents to complex, multi-step parenteral and intratumoral administration. Until more is understood about the long-term effects and potential risks of these agents, ONS (2015) recommends treating the administration of immunotherapeutic agents with the same level of care and vigilance as other antineoplastic agents.

The updated American Society of Clinical Oncology/ONS chemotherapy administration safety standards (Neuss et al., 2017) outline domains of practice to reduce the risk of error in the pre-, intra-, and post-chemotherapy administration periods, which serve as a foundation for evidence-based best practices. These safety standards may be referenced when considering policies and procedures surrounding immunotherapy agents. Applying these standards to immunotherapy administration ensures that independent checks between two professionals deemed competent in immunotherapy administration are verifying and documenting critical components of administration orders, such as patient identifiers, drug name and dose, route and rate of administration, and dosing calculation variables (Neuss et al., 2017).

ONS further outlines recommendations for practice when administering chemotherapy and biotherapy agents via all routes of administration in *Chemotherapy and Biotherapy Guidelines and Recommendations for Practice* (Polovich, Olsen, & LeFebvre, 2014). ONS recommends that the administration considerations and nursing implications in these guidelines be applied to the safe handling and administration of immunotherapy agents in clinical settings.

Nurses must also make note of some important concepts surrounding immunotherapy treatment plans. First, dose reductions are typically not an option in immunotherapy treatment plans as they are with chemotherapy regimens. Immunotherapy doses are either given in full or held completely (Rubin, 2015). Second, multimodality treatment plans are increasingly popular in clinical practice and may include immunotherapy, chemotherapy, radiotherapy, and/or other immuno-oncology agents (Drake, 2012). These concepts support the approach of oncology nurses having fundamental knowledge of antineoplastic principles in conjunction with, rather than in isolation of, one another.

**Immunotherapy Safe Handling**

Safe-handling precautions related to immunotherapy are drug-specific. Limited research is available on the hazardous potential of investigational drugs and those new to the market. Every institution should have an ongoing process for drug evaluation through current literature, product information, and safety data sheets (National Institute for Occupational Safety and Health [NIOSH], 2016). According to NIOSH (2016), hazardous drug precautions are indicated when drugs display traits of carcinogenicity, teratogenicity, genotoxicity, reproductive toxicity, or organ toxicity at low doses, as well as when a mechanism of action indicates a hazardous risk. Understanding the mechanisms of action is essential in determining potential risks to the patient, their family and caregivers, and healthcare providers. Because immunotherapy agents may pose a risk of biohazard exposure, nurses should collaborate with infection control or biologic safety departments to assist with developing policies and procedures regarding immunotherapy agents. For example, live-virus cancer vaccines (oncolytic viruses) are a class of immunotherapy requiring isolation procedures for the duration of a patient’s treatment or until all his or her lesions are healed. Soiled dressings must be properly discarded, and personal protective equipment, including gowns, gloves, and, in some cases, face or eye protection, is indicated (McMahon, 2016).

**Conclusion**

Immunotherapy promises exciting advancements in oncology care. Nurses administering immunotherapeutic agents and caring for those receiving treatment must be knowledgeable about how the

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The authors take full responsibility for this content. The article has been reviewed by independent peer reviewers to ensure that it is objective and free from bias.

REFERENCES


