Administration and Handling of Talimogene Laherparepvec: An Intralesional Oncolytic Immunotherapy for Melanoma

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Writing and editorial support were provided by Ali Hassan, PhD, and Meghan Johnson, PhD, at Complete Healthcare Communications, LLC, in Chadds Ford, PA, through support from Amgen Inc. Mention of specific products do not indicate or imply endorsement by the *Oncology Nursing Forum* or the Oncology Nursing Society.

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Submitted October 2015. Accepted for publication December 7, 2015.

Key words: talimogene laherparepvec; GM-CSF; administration/handling; oncolytic immunotherapy

ONF, 43(2), 219–226.

doi: 10.1188/16.ONF.219-226

Purpose/Objectives: To describe the administration and handling requirements of oncolytic viruses in the context of talimogene laherparepvec (Imlygic™), a first-in-class oncolytic immunotherapy.

Data Sources: Study procedures employed in clinical trials, in particular the OPTiM study.

Data Synthesis: Evaluation of nursing considerations for administration of talimogene laherparepvec.

Conclusions: Talimogene laherparepvec is administered through a series of intralesional injections into cutaneous, subcutaneous, or nodal tumors (with ultrasound guidance as needed) during an outpatient clinic visit. A single insertion point is recommended; however, multiple insertion points are acceptable if the tumor radius exceeds the needle's radial reach. Talimogene laherparepvec must be evenly distributed throughout the tumor through each insertion site. Talimogene laherparepvec requires storage at −90°C to −70°C and, once thawed, should be administered immediately or stored in its original vial and carton and protected from light in a refrigerator (2°C to 8°C).

Implications for Nursing: Because talimogene laherparepvec can be administered in the outpatient setting, nurses will be pivotal for appropriate integration and administration of this unique and effective therapy.

The development of cancer immunotherapies, which employ the immune system to promote antitumor activity, has resulted in significant changes in the treatment of cancer (Mellman, Coukos, & Dranoff, 2011). Treatment with immunotherapies has resulted in durable responses and long-term benefit in patients with a variety of different tumor types, including advanced melanoma (Brahmer et al., 2015; Garon et al., 2015; Hamid et al., 2013; Herbst et al., 2013; Hodi et al., 2010; Postow et al., 2015; Robert et al., 2015; Topalian et al., 2012).

The Cancer-Immunity Cycle proposed by Chen and Mellman (2013) has become the model for cancer immunotherapy research (see Figure 1). In this model, tumor-derived antigens (TDAs), which are released through cancer cell death, are processed and presented by dendritic cells to T cells in the lymph nodes. In subsequent steps, activated cytotoxic T cells traffic systemically and infiltrate distant tumor sites. If the activated T cell encounters cancer cells with a matching antigen profile, the target cancer cell is killed, resulting in immunogenic cell death. TDAs are subsequently released, resulting in a vicious cycle (Chen & Mellman, 2013).

The Cancer-Immunity Cycle does not act appropriately in patients with cancer: (a) tumor antigens may go unpresented by dendritic cells or be identified as self rather than foreign by dendritic cells or T cells; (b) T cells may not be properly activated; (c) T cells may not accurately localize or infiltrate tumors; and/or (d) the