**Radiation Safety Guidelines for Radioimmunotherapy With Yttrium 90 Ibritumomab Tiuxetan**

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Radioimmunotherapy is a new cancer therapy that combines the cytotoxicity of radiation with the tumor-specific targeting of monoclonal antibodies. Yttrium 90 (Y-90) ibritumomab tiuxetan (Zevalin™, IDEC Pharmaceuticals Corporation, San Diego, CA) is indicated for the treatment of patients with relapsed or refractory low-grade, follicular, or transformed B-cell non-Hodgkin’s lymphoma (NHL), including patients with rituximab-refractory follicular NHL. Y-90 ibritumomab tiuxetan requires only universal safety precautions and does not impose undue risks or radiation safety restrictions on patients or healthcare workers. The ibritumomab tiuxetan regimen can be administered safely in an outpatient setting. Nurses should become familiar with the necessary precautions in caring for patients treated with Y-90 ibritumomab tiuxetan, both to educate patients about safety issues and to minimize the risk of radiation exposure to staff and others.

**Key Words:** radioimmunotherapy, safety

Radioimmunotherapy is a beneficial treatment modality for patients with relapsed or refractory low-grade, follicular, or transformed B-cell non-Hodgkin’s lymphoma (NHL). This article discusses the necessary precautions in caring for patients treated with Y-90 ibritumomab tiuxetan RIT regimen (Zevalin™, IDEC Pharmaceuticals Corporation, San Diego, CA).

**Radioimmunotherapy**

RIT is approved for use in patients with relapsed or refractory low-grade, follicular, or transformed B-cell non-Hodgkin’s lymphoma. It combines the cytotoxicity of radiation with the specificity of monoclonal antibodies by a combination of targeted radiation, the biologic effect of the monoclonal antibody, and the crossfire effect of the radiation on nearby tumor cells to which the antibody did not bind (e.g., because of physical inaccessibility, because the tumor cell did not express the antigen, or for tumor cell surface antigens). RIT can deliver higher doses of radiation to targeted tumors than to nearby healthy organs (Press et al., 1993; Wiseman et al., 2001). After the delivery of the radioisotope to malignant tissue by the antibody’s targeting of the antigen, cancer cells are killed by a combination of the targeted radiation, the biologic effect of the monoclonal antibody, and the crossfire effect of the radiation on nearby tumor cells to which the antibody did not bind (e.g., because of physical inaccessibility, because the tumor cell did not express the antigen, or for tumor cell surface antigens).

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