■ Article

Blinatumomab: A New Treatment for Adults With Relapsed Acute Lymphocytic Leukemia

Jessica A. Turner, MSN, AGPCNP-BC, OCN®, and Susan M. Schneider, PhD, RN, AOCN®, FAAN

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Background: Patients with acute lymphocytic leukemia (ALL) often experience relapse of their disease following standard treatment. Blinatumomab (Blincyto®) is a newly approved option for inducing remission in individuals with relapsed or refractory Philadelphia chromosome–negative B-cell ALL.

Objectives: This article provides an overview of blinatumomab, its benefits demonstrated in clinical trials, adverse effects, administration details, and the role of the oncology nurse in caring for and educating patients who receive blinatumomab.

Methods: This article summarizes the results of two phase II studies on blinatumomab and provides practice implications for nurses caring for patients receiving this therapy.

Findings: Attentive symptom monitoring and management are crucial. Individuals who achieve remission from blinatumomab can then be considered for stem cell transplantation and a chance for cure.

Jessica A. Turner, MSN, AGPCNP-BC, OCN®, is a nurse practitioner at Texas Oncology in Round Rock; and Susan M. Schneider, PhD, RN, AOCN®, FAAN, is an associate professor and lead faculty for oncology in the School of Nursing at Duke University in Durham, NC. The authors take full responsibility for the content of the article. The authors did not receive honoraria for this work. The content of this article has been reviewed by independent peer reviewers to ensure that it is balanced, objective, and free from commercial bias. No financial relationships relevant to the content of this article have been disclosed by the authors, planners, independent peer reviewers, or editorial staff. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the *Clinical Journal of Oncology Nursing* or the Oncology Nursing Society. Turner can be reached at jaturner2@gmail.com, with copy to editor at CJONEditor@ons.org. (Submitted May 2015. Revision submitted July 2015. Accepted for publication July 14, 2015.)

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Acute lymphocytic leukemia (ALL) is a type of cancer that develops from immature forms of lymphocytes, a type of white blood cell in the bone marrow. Although only about 40% of ALL cases occur in adults, about 80% of deaths from ALL occur in this age group (American Cancer Society, 2015). Even with improvements in first-line therapies, about 33% of standard-risk patients and 66% of high-risk patients experience disease relapse (Gökbuget et al., 2012). Salvage chemotherapy regimens for B-precursor relapsed ALL frequently involve the use of high-dose cytarabine (Cytosar®) in combination with other agents (Gökbuget et al., 2012). For patients with disease that has failed multiple therapies, complete remission (CR) occurs in only 20%–30% of patients, with a median overall survival of 3–6 months (Topp et al., 2015). Allogeneic stem cell transplantation for individuals in remission is the only curative option for adult patients with relapsed or refractory ALL (Topp et al., 2015). Therefore, achieving a CR is a valuable step in their journey for a cure.

Blinatumomab (Blincyto®), as a single-agent therapy, is an effective new immunotherapy agent to induce remissions in refractory B-cell ALL. Blinatumomab is indicated for relapsed or refractory ALL in adults (Amgen Inc., 2014). CD19 is a surface antigen expressed in B-cell development and in more than 95% of B-precursor ALL blasts, making it a promising target for immunotherapy (Raponi et al., 2011). The drug is bispecific to both CD19 and CD3 (Topp et al., 2015). Blinatumomab simultaneously binds CD3-positive cytotoxic T cells and CD19-positive B cells, causing the T cells to induce lysis of the normal and malignant B cells (Hoffmann et al., 2005).

Indications

In December 2014, the U.S. Food and Drug Administration ([FDA], 2014) accelerated the approval of blinatumomab for relapsed or refractory Philadelphia chromosome–negative B-cell ALL. Currently, this is the only FDA-approved indication for blinatumomab therapy.