A Multidisciplinary Approach to Standardizing Processes for Blinatumomab Administration

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Blinatumomab (Blincyto®) has received accelerated approval for treatment of relapsed or refractory acute lymphoblastic leukemia. This article describes the authors' experience with a multidisciplinary collaboration among nursing, pharmacy, prescribers, and support staff, which has proven to be key for safe administration. The approach can be applied to other institutions planning to use blinatumomab.

At a Glance

- Blinatumomab is a therapy with many complexities regarding preparation, administration, monitoring, and coordination of care, which may pose challenges for successful implementation.
- Institutional blinatumomab guidelines and order sets serve as essential resources for the multidisciplinary team throughout the treatment process.
- A collaborative approach with a multidisciplinary team is needed for the safe administration of blinatumomab.

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Key words: blinatumomab; acute lymphoblastic leukemia; multidiscipinary collaboration; education

Digital Object Identifier: 10.1188/16.CJON.466-469

Acute lymphoblastic leukemia (ALL) is a rare and often fatal cancer, with an estimated 6,590 new cases and 1,430 deaths in the United States in 2016 (American Cancer Society, 2016). ALL is most common in children and adolescents, with the majority of cases diagnosed in people younger than age 20 years. An estimated 42% of cases are diagnosed after age 20 years (National Cancer Institute, 2016).

The treatment of adults with ALL remains a challenge, and the success seen in pediatric patients is, unfortunately, not paralleled in the adult population. With currently available induction therapies, complete remission (CR) rates for newly diagnosed adult patients with ALL range from 74%–93%, depending on age and risk stratification (Bassan & Hoelzer, 2011; Fielding et al., 2007; Gökbuget & Hoelzer, 2009; Kantarjian et al., 2004; Oriol et al., 2010). Despite the high rates of CR, long-term disease-free survival is only achieved in about 40% of patients because of the high occurrence of relapse, which is observed in about 50% of patients (Fielding et al., 2007; Kantarjian et al., 2004; Oriol et al., 2010). Second remission (CR2) can be achieved in some cases; however, post-relapse treatment approaches rarely result in long-term survival. Studies have shown CR2 rates to be 42%–45% with conventional salvage combination chemotherapy regimens (Bassan & Hoelzer, 2011; Oriol et al., 2010). The post-relapse five-year overall survival rate is 4%–23% and is most often attained in patients who undergo hematopoietic stem cell transplantation (HSCT) (Fielding et al., 2007).

Blinatumomab

Obtaining a CR is an essential first step to undergoing successful HSCT (Fielding et al., 2007). Given the lack of durable response with standard chemotherapy in the relapsed ALL population, new agents are needed to increase the rate of CR and opportunity for transplantation, therefore improving the chance of long-term survival (Fielding et al., 2007; National Comprehensive Cancer Network, 2015). Treatment with bispecific T-cell engager (BiTE) antibodies is an appealing approach because they target a specific subtype of disease, use a distinct mechanism of action, and have a different side effect profile compared to traditional chemotherapy (Raponi et al., 2011). CD19 is an antigen expressed in almost all patients with precursor B-cell ALL, which makes this cell surface marker a valuable target