Moxetumomab Pasudotox

Clinical experience in relapsed/refractory hairy cell leukemia

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BACKGROUND: Moxetumomab pasudotox is a promising new therapy for the treatment of patients with relapsed/refractory hairy cell leukemia (R/R HCL), but practical guidance relating to its administration is limited.

OBJECTIVES: This article describes clinical guidelines for the administration of moxetumomab pasudotox to patients with R/R HCL and presents related case studies.

METHODS: A limited review of the literature on HCL was undertaken.

FINDINGS: Nursing care of patients prescribed moxetumomab pasudotox includes monitoring clinical and laboratory parameters, managing side effects, being aware of signs of serious side effects, and maintaining patient hydration during administration.

KEYWORDS
hairy cell leukemia; moxetumomab pasudotox; novel therapies; immunoconjugates

DIGITAL OBJECT IDENTIFIER
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HAIRY CELL LEUKEMIA (HCL), A CHRONIC MATURE B-CELL MALIGNANCY, accounts for about 2% of all leukemias, with an estimated 1,200 new cases occurring in the United States each year (Kreitman & Arons, 2018). Like patients with other B-cell malignancies, patients with HCL present with fatigue and infection or bleeding, and they may also have abdominal fullness from splenomegaly (Chang, Stroup, & Weiss, 1992; Wanko & de Castro, 2006). A definitive diagnosis of HCL is based on its characteristic immunophenotype: Hairy cells express several cell surface markers at high levels, including the following clusters of differentiation (CDs): CD19, CD20, CD22, CD11c, and CD25 (Stetler-Stevenson & Tembhare, 2011; Thompson & Ravandi, 2017). Classical HCL is immunophenotypically and genetically distinguishable from other HCL-like disorders, which include HCL variant and splenic diffuse red pulp lymphoma (Troussard & Cornet, 2017).

The treatment paradigm for HCL is based on the clinical evaluation of patients. Classical HCL has an indolent disease course, and asymptomatic patients with acceptable blood counts are managed with a watch and wait strategy (Golomb, 1983; Grever et al., 2017). For the majority of patients with disease symptoms or low complete blood cell counts, first-line therapy consists of purine nucleotide analogs (PNAs), typically cladribine or pentostatin (Jones, Parry-Jones, Wilkins, Else, & Catovsky, 2012; Robak, Matutes, Catovsky, Zinzani, & Buske, 2015). Although these therapies produce high rates of complete response (Else et al., 2009; Rosenberg, Burian, Waalen, & Saven, 2014), patients can have remaining minimal residual disease (MRD), which can result in disease relapse (Kreitman & Arons, 2018).

Choice of second-line and subsequent therapies in patients who relapse depends on the duration of their first remission (Grever et al., 2017). Patients who relapse before two years of remission are considered to be relapsed/refractory (R/R) patients, but even patients relapsing after longer intervals may be considered R/R from the decreasing efficacy and increased cumulative myelotoxicity of chemotherapy administration. HCL in these patients can be hard to treat because of poor tolerance to chemotherapy, increased risk of infection, and decreased responsiveness to chemotherapy (Jain, Polliack, & Ravandi, 2015; Maevis, Mey, Schmidt-Wolf, & Schmidt-Wolf, 2014).

Targeted therapies have shown efficacy in patients when therapy with pentostatin or cladribine has failed. The anti-CD20 monoclonal antibody