Nursing Implications for Patients with Myeloma Receiving Combination Therapy with Daratumumab (Darzalex™) and Lenalidomide

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Introduction

Daratumumab (DARA) is a first-in-class, human IgG1 monoclonal antibody that targets CD38, a protein that is highly expressed on multiple myeloma (MM) cells. First approved as a monotherapy, DARA has now been shown to increase length and depth of response when added to lenalidomide and dexamethasone (Rd).

Evaluation

Prior to initiation: DARA administration creates false-positive indirect Coombs tests in 100% of DARA treated patients. DARA interferes with the test by binding to endogenous CD38 on RBCs, resulting in pan-agglutination. This can be solved by cross typing the patient’s blood before initial DARA administration. The blood bank can then provide phenotypically matched blood despite incompatibility readings. If the patient has not had typing before DARA, the blood bank can use Dithiothreitol (DTT) denaturation of the CD38 to reverse the false incompatibility. Appropriate and timely transfusions can still be accomplished through communication between healthcare provider and the blood bank.

Approximately half of DARA patients will have an infusion reaction during the first infusion, 2% will have an infusion reaction during the second infusion. Median time of onset of reaction is 1.5 hours. Reactions are usually respiratory in nature: cough, bronchospasm, rhinitis, or laryngeal edema. Chari et al. (2016) demonstrated that premedicating with montelukast reduces respiratory reactions by one third. Other reactions include rash, fever, back pain, and/or rigors. There is no increase in incidences of infusion reaction when given in combination with lenalidomide.

Administration

Premedication: Diphenhydramine 25mg, acetaaminophen 650mg, montelukast 4mg, and dexamethasone 20mg IV pre infusion, then 20mg oral the following day (40mg weekly)

DRd: DARA 16mg/kg IV weekly x 8, every 2 weeks thereafter; lenalidomide 25mg PO Days 1-21 of each 28-day cycle; dexamethasone 40mg orally on non infusion weeks.

In the event of an infusion reaction: Stop infusion, medicate as necessary until reaction subsides, then restart at half the infusion rate and increase again as above. Concomitant medications: Daily anticoagulation and antiviral prophylaxis

Monitoring

Higher incidences of diarrhea, nausea, vomiting, fatigue, upper respiratory infection, cough and muscle spasms were seen in DRd, as compared to Rd. A higher incidence of neutropenia was also seen (92% vs. 87%).

Conclusion

DARA is a first-in-class, human IgG1 monoclonal antibody that targets CD38, a protein that is highly expressed on multiple myeloma (MM) cells

DARA can cause false positive indirect Coombs tests

Proper steps are necessary to prevent transfusion delays

Proper premedication and concomitant medications can minimize infusion reactions and toxicities

DARA in combination with Rd has a higher incidence of GI symptoms, neutropenia, upper respiratory infections, muscle spasms, fatigue and dyspnea than Rd alone.

Overall, DARA increases length and depth of response when added to Rd and is well tolerated.

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