TRANSFUSION-RELATED SAFETY AND ACCESS IN PATIENTS WITH RELAPSED/REFRACTORY MULTIPLE MYELOMA TREATED WITH DARATUMUMAB-BASED REGIMENS IN A HOSPITAL IN COLOMBIA : REAL-WORLD RESULTS

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FUNDACIÓN VALLE DEL LILI

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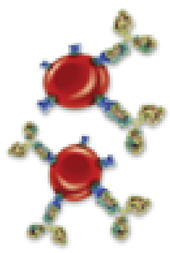
INTRODUCTION

Daratumumab is a humanized IgG1κ monoclonal antibody targeting the CD38 a transmembrane glycoprotein overexpressed on malignant plasma cells and, to a lesser extent, on **red blood cells** (RBCs)) Its efficacy in multiple myeloma (MM) is well established.



Daratumumab-binds to CD38 on RBCs, causing panagglutination in indirect antiglobulin tests and interfering with pre-transfusion compatibility testing as observed in figure 1 (3) (4).

This study aimed to evaluate the incidence of RBC alloimmunization and the transfusion behavior of daratumumab-treated patients, particularly where extended RBC phenotyping is limited.

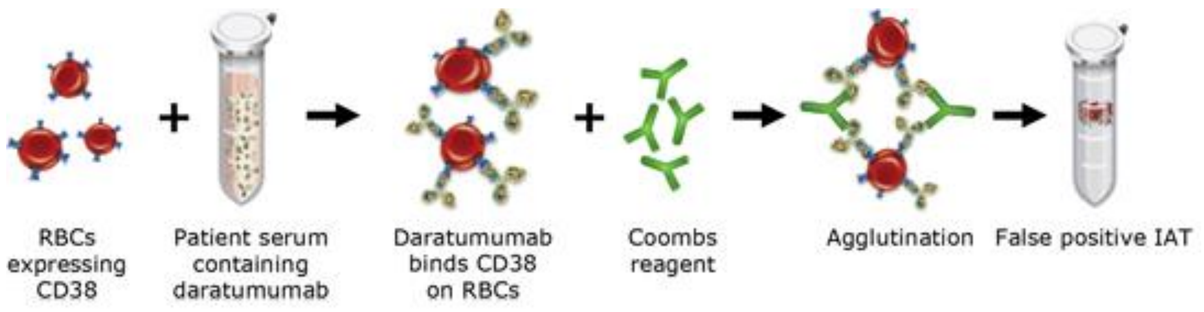


Figure 1. Adapted from "Clinical efficacy of daratumumab monotherapy in patients with heavily pretreated relapsed or refractory multiple myeloma," by Usmani SZ, et al., 2017, *Blood Cancer Journal*, 7(11), e577.

METODOLOGY AND RESULTS

Selection of patients over 18 years of age diagnosed with multiple myeloma with clinical relapse or high-risk biochemical relapse, who required transfusion of RBC, treated with Daratumumab, from January 2018 to January 2024.

Collection of clinical and functional characteristics of the patients that included transfusion requirements, alloimmunization testing, frequency of daratumumab-induced serologic interference, and the presence of clinically significant RBC alloantibodies after treatment with **dithiothreito**l (DTT), a reducing agent that denatures CD38 on RBCs (4).

A total of 138 patients were assessed

94 (68%) patients required RBC transfusions

44 patients do not required RBC transfusions

45 (48%)patients underwent extended RBC phenotyping prior to starting daratumumab.

Pre-transfusion testing was positive in 59 (63%) patients.

After DTT treatment, only **2 (5%)** patients were found to harbor clinically significant **alloantibodies.**

In this study population, a total of **674 units of RBCs** were administered and no differences were observed in transfusion timing between patients who underwent red blood cell phenotyping and those who did not.

CONCLUSIONS

Among the study population, only 45 patients underwent extended RBC phenotyping prior to starting daratumumab, It is essential to optimize transfusion efficacy. Alloimmunization incidence was low and showed no correlation with the number of RBC units transfused. Furthermore, although **pre-treatment phenotyping improved transfusion logistics**, it did not significantly impact the overall risk of alloimmunization.

While RBC transfusion in daratumumab-treated MM patients remains operationally complex due to serologic interference, the risk of alloimmunization is low in clinical practice. Preemptive RBC phenotyping prior to initiating anti-CD38 therapy enhances transfusion readiness but does not appear to alter alloimmunization risk. These findings align with existing evidence suggesting **minimal impact of Daratumumab on alloantibody development.**

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