

# Transfusion of a D-- phenotype patient using the Rare Blood Donor Registry of the Korean Red Cross Blood Services

Jay Ho Han<sup>1</sup>, So-Yong Kwon<sup>2</sup>, Dong Wook Jekarl<sup>1</sup>



<sup>1</sup>Department of Laboratory Medicine, College of Medicine, The Catholic University of Korea, Seoul, St. Mary's Hospital, Banpo-Daero, Seocho-Gu, Seoul, Republic of Korea;  
<sup>2</sup>Korean Red Cross Blood Services Headquarters, Wonju, Republic of Korea

Dear Sir,

Transfusion for patients with a rare blood group or phenotype, such as the D-- phenotype, are challenging for blood banks. Many countries have established programmes to continuously identify rare donors and set up registries to support patients in need of rare blood<sup>1</sup>. In line with this, since 2013, the Korean Red Cross Blood Services (KRCBS) has conducted serologic testing for the C, c, E, and e antigens and registered donors identified as D -- phenotype in the Rare Blood Donor Registry<sup>2</sup>. Recently, the authors received D-- phenotype packed red blood cells (PRC) via the KRCBS Rare Blood Donor Registry. Among six D-- phenotype donors contacted for blood donation, two were able to donate for a patient with the D-- phenotype.

The patient was diagnosed with a diffuse large B-cell lymphoma. He had type B blood group, RhD positive, and had a positive antibody screening test (ID-Diacell I-II; Bio-Rad, Cressier, Switzerland). A subsequent antibody identification test (ID-Dia Panel; Bio-Rad) identified anti-Ce. Rh subgroup typing was negative for CcEe antigen, confirming that the patient was of the D-- phenotype. Agglutination was not observed with autologous cells.

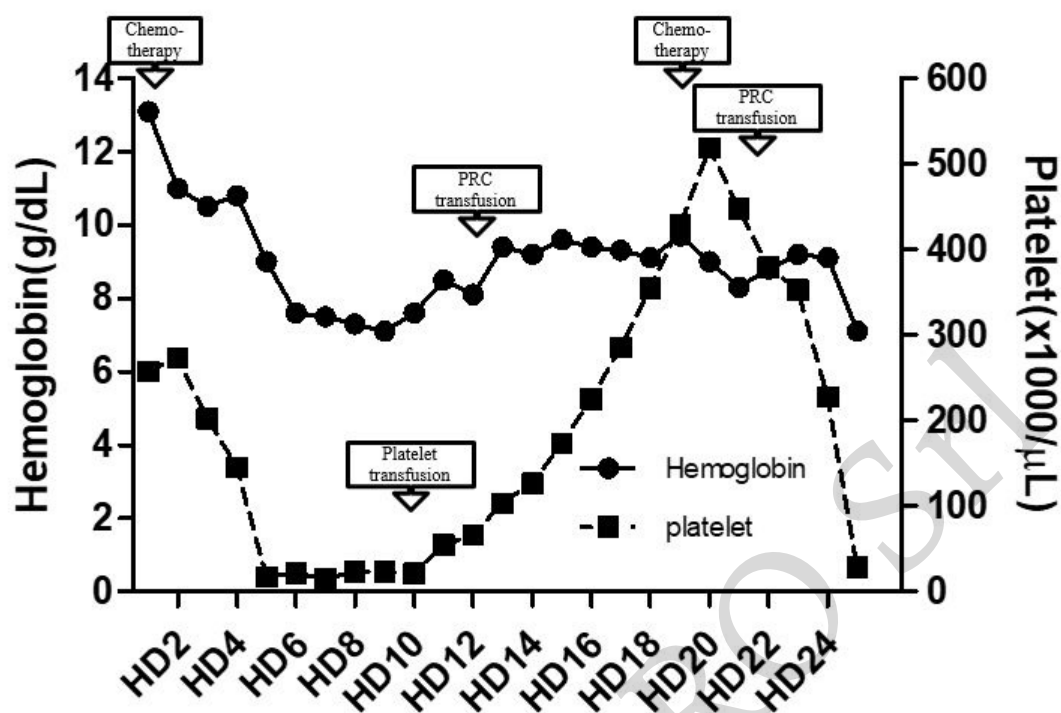
During chemotherapy, complete blood count results showed anaemia and thrombocytopenia. D-- type PRC and platelets were requested from the KRCBS for emergency transfusion. The patient received timely PRC and platelet transfusions. After subsequent therapy, the patient's symptoms improved and he was discharged. Although D-- blood is very rare<sup>3</sup>, there was no delay in accessing compatible blood products, leading to discharge of the patient in good condition after chemotherapy without severe haemolysis<sup>4</sup>. **Figure 1** shows transfusion of PRCs and platelets during chemotherapy. The haemoglobin level increased at different time points without transfusion, which may have been because the patient's own haematopoietic function was maintained. Anti-Ce antibodies identified in the patient are thought to have been produced in response to exposure to antigens due to transfusion of red blood cells during prior surgery.

Securing blood for patients with rare blood types can be achieved in different ways, including collecting autologous blood prior to surgery or transfusion, testing family members for the rare blood type, or maintaining a rare blood donor registry with or without a frozen blood bank<sup>5</sup>. Although establishing a donor registry for rare blood groups requires time and resources, this could help save lives. Here we

Arrived: 4 August 2020

Accepted: 25 August 2020

Correspondence: Dong Wook Jekarl  
e-mail:bonokarl@catholic.ac.kr



**Figure 1 - Summary of packed red blood cell and platelet transfusion of patient with D-- phenotype**  
 PRC: packed red blood cell; HD: hospital day.

report the first case of transfusion via the KRCBS Rare Blood Donor Registry for a patient with the D-- phenotype.

*The Authors declare no conflicts of interest.*

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