Finnish national rare donor program

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The Finnish Red Cross Blood Service serves as a national blood service and a reference laboratory for pre-transfusion testing. All challenging antibody identification cases and donor phenotyping and genotyping in Finland are thus carried out in our laboratory. This optimizes rare donor program management in Finland and helps in designing the transfusion strategy for patients with a rare blood type.

The Finnish rare donor program has operated for over 30 years. A blood type is considered rare if its prevalence is 1 in 1000 or less, with the most common rare phenotypes in Finland being LW(a–), Jk(a-b-), and P^k. Because of the problematic availability of rare blood, we implemented a program for freezing red blood cells (RBCs) in Finland with the Haemonetics (Braintree, MA) ACP 215 processing system in April 2010. The system is closed, therefore enabling an extended shelf life of the units after thawing compared with an open system. Based on our validation results, the units are safe for use for 7 days after thawing.

At present, we have around 130 donors aged 18–65 years with rare blood types in the donor registry, of which about 70 are active donors with donations in the past 2 years (Table 1). During 2012–2014, 12 new rare donors were added to our database. Blood types that are globally rare but more common in Finland, such as Jk(a–b–) and LW(a–), are represented in our donor database and in the stock of frozen RBC units and are also available internationally. In 2012–2014, 57 thawed and deglycerolized units were distributed domestically and 24 deglycerolized and 13 fresh units were distributed internationally. With the exception of Vel–, hr^S–, and O_h (Bombay) blood types, we have been able to meet the need for rare blood in Finland using Finnish donors.

There has been only one international request that could not be fulfilled and that was for Rh_{null}. We have had one Rh_{null} donor (possible regulator type) with no antibodies. Unfortunately, that donor is no longer eligible for donation.

A patient with anti-LW^a received nine crossmatch-compatible D– LW(a+) RBC units during a liver transplantation. The transfusion of LW(a+) blood was unavoidable because the time of the liver transplantation was not possible to foresee, and we could not predict the amount of bleeding during the operation. According to the laboratory results, there were no signs of hemolysis after the surgery.

Small incentives are provided to all donors occasionally, but there are no extra incentives for rare donors. The rare donors are informed about the special importance of their donations and about the cryopreservation of RBCs, which makes the time point of a donation more flexible and convenient for the donor than donations made only on special request.

Table 1. Rare donors in the Finnish Red Cross Blood Service who donated in 2013–2014.

Phenotype	Number of donors
Jk(a–b–)	24
LW(a–b+)	19
k–	11
Co(a–)	6
Lu(b–)	5
P^k	4
Vel–	3
p	1

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