

NHSBT Board Meeting, March 2017

Baby R, Birmingham – a success story

During 2016, Mrs R became pregnant for the fifth time, on three of these occasions she had lost her baby, she had one child. This pregnancy was managed by the Fetal Medicine Unit at Birmingham Women's Hospital. An antibody screen revealed a complex combination of relatively rare antibodies. These antibodies can cross the placenta and destroy the developing baby's blood cells. Intra-uterine Transfusions (IUTs) were prescribed to protect the baby and prevent potentially fatal anaemia. IUTs involve injecting donor red cells into the fetus to replace the fetal blood cells that are being destroyed by the antibodies in the mother's blood.

Red cells for IUT are a highly specified product with a short shelf life of only 24 hours from the time of irradiation. Blood for IUT also must be used within 5 days of donation, be compatible with the mother, RhD negative, CMV negative, HEV negative, irradiated, sickle cell haemoglobin negative and PANTS negative (additional testing that is used to screen for clinically significant antibodies in the provision of paediatric units). During 2016, NHSBT issued an average of 20 IUT units per month.

Mrs R had a total of nine IUTs at regular intervals between September and December 2016. The last IUT was performed on 29th December, between Christmas and New Year. On 11th January Mrs R delivered a healthy baby boy.

Blood of Mrs R's type was so rare that we needed to search the database for suitable donors and invite them to donate using NHSBT's standard "special call-up" procedure as we won't find these units 'on the shelf'. The special donor call-up procedure is run by the Clinical Teams, usually initiated once or twice each month, with requests ranging from one to several units of red cells, sometimes over a period of several weeks. For Mrs R, two donors were called up for each IUT. Eighty suitable donors were identified but the list reduced by half when we accounted for the date of the previous donation, medical deferrals, travel and illness. Our next challenge was to find sessions that were near and convenient to the donor's residence or place of work, within 5 days of the IUT but allowing time for manufacture and testing. Once we had identified suitable sessions, we contacted Manufacturing staff to confirm that the blood would reach them within 12 hours of venepuncture – a requirement for manufacturing an IUT unit. Not all collections are transported directly to the Manufacturing site. On one occasion, the blood had to be transported from session by a courier to keep within the time limits.

Once we had confirmed the logistics, the Clinical teams at Birmingham and Sheffield telephoned each donor to see if they would be prepared to donate. We identified the Session Sister and passed on the donor's details, with instructions to bleed the donor into a specific blood pack and to tag the donation. We also asked for session staff to telephone Dr Anand to confirm the outcome of the donation. Donation numbers were passed on to Manufacturing and Hospital Services staff, and Medical staff tracked the progress of the donations in Pulse.

For each IUT, information was emailed to the many teams and departments involved. We also wrote to the donors to confirm the session details and to thank them for responding to our call. We could not have supported this treatment program without their generosity and help, especially those who donated at Christmas time and to staff who transported and manufactured the units during the holiday period.

This success story demonstrates the highly technical and complex nature of cases like Mrs R, where manual processes are required, as well as excellent communication and teamwork both across the supply chain and with clinicians in the wider NHS. It demonstrates the care, expertise and quality of service we provide to those who need complex interventions, but which can change their lives.