**NHSBT Board Meeting: Patient Story**

**29th March 2018**

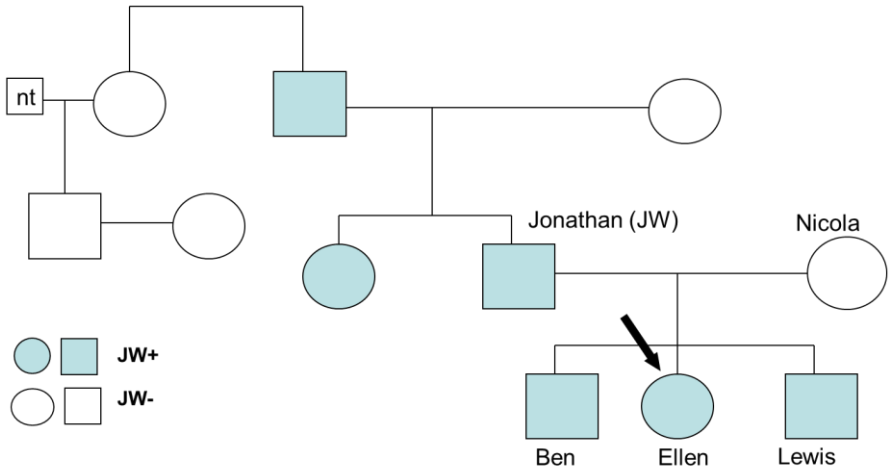
Nicki and Jon had a healthy son Ben and were expecting their second child when at 37 weeks of pregnancy Nicki noticed that the baby was moving less.

A scan suggested that the baby was anaemic and their daughter Ellen was delivered by urgent Caesarean section. Ellen was extremely anaemic with a haemoglobin (Hb) of 20g/L (normally nearer 200g/L at birth) and had low platelet (clotting cell) levels too. Ellen had an emergency exchange transfusion but she had suffered a bleed into the brain which is a complication of both severe anaemia and low platelets.

NHSBT received samples of Nicki's blood, there were no antibodies against Ellen's platelets (when tested in Histocompatibility and Immunogenetics lab in Filton) but there were weak antibodies against Ellen's red blood cells identified by the Red Cell Immunohaematology (RCI) laboratory in Filton. These were anti-A and anti-S. These weak antibodies would not cause very severe anaemia.

A sample was passed across to the International Blood Group Reference Laboratory (IBGRL) who removed the antibodies detected by RCI (anti-A and anti-S) and found that when her plasma was tested against Jon's red cells there was an additional antibody against a previously unidentified substance (an antigen) which could explain the severe anaemia and would be missed by routine screening undertaken on all women at least twice during pregnancy. To date this antigen appears to be unique to Jon's family and it has been called JW after him. His sister and father had the JW antigen on their red cells. Jon's male cousin had a partner who was pregnant when JW was discovered. Samples were tested urgently by IBGRL finding that Jon's cousin did not have the JW antigen on his red cells and his baby would not have the same problem.

Ellen, Nicki and Jon saw a consultant from NHSBT and a consultant in fetal medicine in clinics and were told that it was likely that future children would have a 50% chance of anaemia developing in the womb like Ellen but knowing this the baby could be monitored and transfused if required (see figure).




Nicki became pregnant again. Throughout the pregnancy the levels of JW antibody were measured by IBGRL and the consultant in fetal medicine undertook serial scans looking for evidence of anaemia in the baby. The antibody levels rose and the scan showed increasing blood flow rates (flow rates shown as crosses became nearer to the dangerous red line on the graph below as the weeks passed). This was consistent with developing anaemia.


At 32 weeks a transfusion was given to the baby in the womb. The pre-transfusion haemoglobin was 97g/L (low) and the post-transfusion haemoglobin was 161g/L (normal). A sample of fetal blood was tested confirming that the fetus was positive for JW. The blood flow rate on scan fell back towards the normal white line on the graph after the transfusion.

Baby Lewis was born by caesarean section at 36 weeks gestation with a haemoglobin of 100g/L. He required phototherapy alone and has since been well. Analysis by NHSBT laboratories helped to ensure that the cause of Ellen's anaemia was identified so that Lewis could be kept well.

This story highlights the rapid, responsive and individualised diagnostic services provided by staff from NHSBT to this family and other NHS clinicians supporting them demonstrating our values of caring, expert and quality. We link with fetal medicine, obstetric, surgical, medical and paediatric disciplines making NHSBT a fascinating organisation to work for.