

APPEARANCE OF ISOAGGLUTININS AFTER MINOR ABO-INCOMPATIBLE



SWISS ONCOLOGY & HEMATOLOGY CONGRESS

ALLOGENEIC STEM CELL TRANSPLANT

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BACKGROUND

In 2022, we investigated the time to disappearance and appearance of isoagglutinins A and B in patients who received ABO-incompatible allogeneic haematopoietic stem cell transplantation (HSCT) over a one-year follow-up period (Lemaire B, et al. *Kinetics of disappearance and appearance of isoagglutinins A and B after ABO-incompatible hematopoietic stem cell transplantation. Bone Marrow Transplant. 2022 Sep;57(9):1405-1410*).

Of the 61 patients who underwent minor ABO incompatible allo-HSCT, only 7 patients showed the appearance of isoagglutinins according to the transplanted blood group.

In 2024, we revisited this cohort to understand whether more patients developed isoagglutinin and whether the occurrence of isoagglutinin was persistent.

METHODS

All patients who underwent allo-HSCT with minor ABO incompatibility at our institution between March 2015 and December 2019 were included in this retrospective analysis.

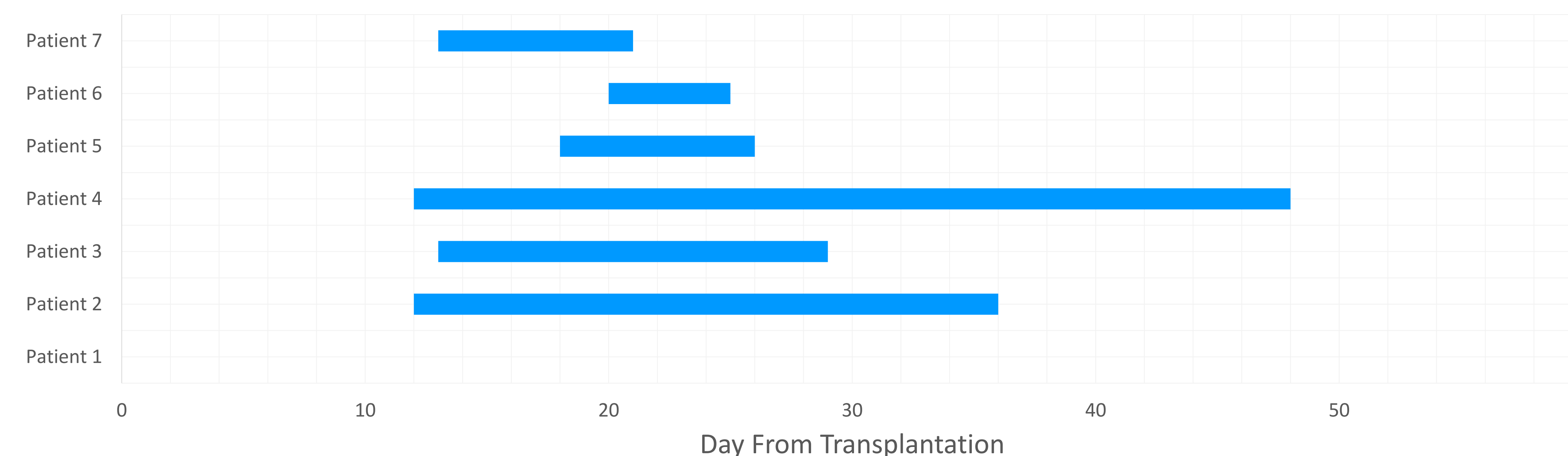
For each patient, we analysed the results of the "reverse typing" performed when blood group analysis was prescribed by the physician.

The occurrence and persistence of isoagglutinin A and B were monitored from the time of transplantation until 20 September 2024.

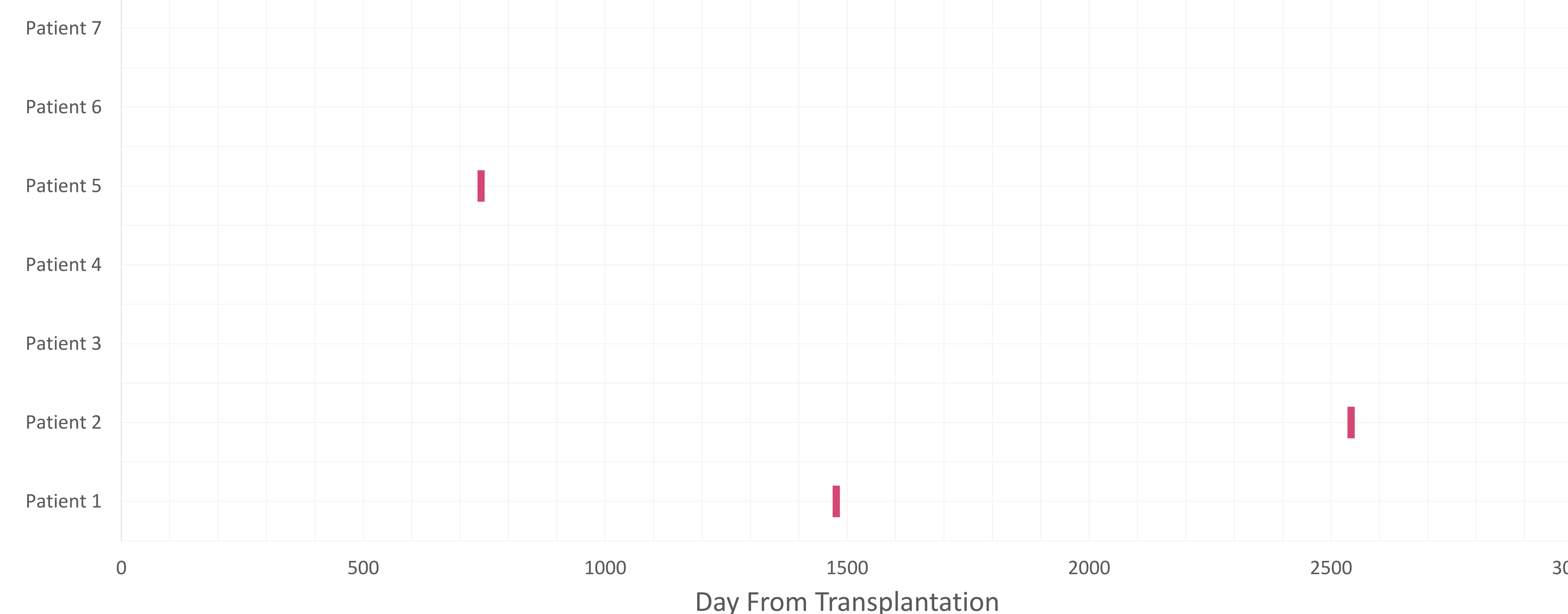
PURPOSE

- **Better understanding of immunohematological modifications induced by allogeneic hematopoietic stem cell transplant**
- **Supporting current transfusion strategy**

Early Detection of Isoagglutinin After Transplantation



Detection of Isoagglutinin More Than 90 Days After Transplantation



RESULTS

- N=61 patients.
- De novo production of isoagglutinin A and B was analyzed in 49 patients and 15 patients, respectively.
- Median follow-up was 46 months (range : 1-109 months).
- Appearance of anti-A isoagglutinin was observed in 7/49 patients.
 - In 6/7 patients, isoagglutinin A appeared between day+12 and day+20 after transplantation.
 - The presence of the isoagglutinin was transient (detection persisted for 5 to 36 days) and was associated with positive DAT and mild hemolysis.
 - In 3/7 patients, we later detected a one-time positivity for isoagglutinin A (on days 736, 1470 and 2534 after HSCT).
- Appearance of anti-B isoagglutinin was not observed (0/15).
- For all patients, the last analysis performed showed absence of anti-A or anti-B isoagglutinin.

CONCLUSION

With a follow-up month after transplantation ranging from 1 to 109 months, we observed two types of isoagglutinin appearance.

- The first type is observed in 6/61 patients, shortly after transplantation, accompanied by a positive DAT and mild haemolysis. This was attributed to passenger lymphocyte syndrome.
- The second type is observed in 3/61 patients, during the long term follow-up after transplantation, on only one occurrence. This was attributed to de novo production of isoagglutinins.

Although de novo occurrence was observed at a surprisingly low rate, we have to take into account that most of these patients had few tests performed.

The sustainability of isoagglutinin production was difficult to assess because of the long intervals between analyses.

We believe that if systematic and frequent analyses were performed, more de novo isoagglutinin production would have been observed, concerning more patients and multiple occurrences per patient.

In the case of minor ABO incompatible allo-HSCT, transfusion of red cells according to the donor's blood group remains a necessity after HSCT.