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admin@sats.org.za

11 May 2023

Blood Group Incompatible (ABOi) Transplantation - Statement of the South African Society of Transplantation

Introduction and Context

There is a global organ shortage resulting in many patients dying on transplantation wait lists (1). This has resulted in the development of numerous alternative clinical techniques to increase the availability of donor organs.

The use of blood group incompatible organs from both deceased donor and living donors is a well validated and safe method for improving both access to transplantation and the number of transplants to be performed (2,3,4,5).

In the era of improved pharmacotherapies such as the availability of the CD-20 monoclonal antibody Rituximab, improvements in isoagglutinin control and testing, ABOi transplantation is safe and results in equivalent patient and graft survival when compared to blood group compatible transplantation (3,5,6).

Purpose of this statement

- To inform the circumstances and contexts under which ABOi transplantation can be considered
- To advise on best practice principles through which ABOi transplantation should be performed at transplant centres
- To propose a centralised, national platform for the development of treatment protocols, the collection of data and the development of new methodologies, techniques, and pharmacotherapies as they pertain to ABOi transplantation to ensure that a standardised and consistent baseline for care is established in South Africa

Context and Clinical Circumstances under which ABOi should be considered.

ABOi transplantation can be considered in the following circumstances, provided there is informed consent from the patient or their surrogate, and a standardised institutional protocol for ABOi transplantation exists:

- In all solid organ recipients where there is the availability of a deceased donor ABOi organ, and when there is no better suited compatible recipient of the same blood group, and where the risk of denying access to transplantation is outweighed by the benefit to patient survival.

- In the acute organ failure setting where a viable living donor option exists, and there is no viable or available ABO compatible living donor or deceased donor, and where the risk of denying access to transplantation is outweighed by the benefit to patient survival.
- In the elective setting where there is no available ABO compatible living donor
- Where the recipient has a viable and available ABOi donor where the treating clinical team deems there to be no clinical contraindications to treatment and the option of a paired exchange has been explored.

These options should also be considered in children and adolescents in centres who have experience with this.

ABOi transplantation should not be considered at this time in the following situations:

- If the recipient has a viable and available deceased donor or living donor ABO compatible donor offer
- In the setting of donation after circulatory death (DCD)
- If the measured isoagglutinin titre using the dithiothreitol (DTT) treatment of plasma method is greater than 512 for the donor organ blood type
- If there is not informed consent
- If there is no standardised protocol for the management of ABOi transplantation at the institution offering the transplant

Protocol Development and Data Collection

- Institutions must develop institutionally contextualised and agreed upon protocols for the management of ABOi transplantation in their centre in line with accepted international standards
- Such protocols should be available for review
- We recommend the establishment of a National ABOi solid organ patient database for improving access and quality of ABOi transplantation for the South African population.

Best Practice Principals

- We recommend the use of a separate ABOi consenting process and form for recipients of ABOi organs which outlines the processes and risks associated with ABOi transplantation.
- We recommend the use of both PBS and Dithiothreitol (DTT) validated isoagglutinin testing for the estimation of IgG and IgM anti-A and anti-B antibody titres in recipient plasma samples.
- We recommend that institutional protocols utilise either plasmapheresis techniques and/or immunoadsorption columns for the pre- and post-operative control of isoagglutinin titres in recipients of ABOi solid organ transplants and that the safety and efficacy of the techniques in question must consider individual as well as institutional factors such as bleeding risk, haemodynamic compromise, cost and availability.
- We recommend that the protocolised care of ABOi recipients include the use of the CD20 monoclonal antibody therapy Rituximab.
- We do not recommend the routine use of splenectomy as a method to control isoagglutinin levels in recipients of ABOi solid organ transplantation.
- Immunosuppression regimens and immunomodulatory techniques and protocols must be adaptable to the individual patient requirements and treatment runs.

Conclusion

ABOi transplantation is a viable alternative for solid organ recipients and must be performed by experienced and well-trained clinical teams. The use of ABOi organs is safe and results in improved access to and availability of transplantation.

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Prof Mignon McCulloch
Tel: +27(0)827804097
Email: mignon.mcculloch@uct.ac.za
President of South African Transplant Association(SATS)