

KIDNEY TRANSPLANT

I have a donor – but we are not a match

DESENSITISATION



Transplant
Education for
Living Legacies



If you and your potential donor have completed:

- Initial Consultation
- First Cross-match
- Second Cross-match

and the second cross-match result is positive (incompatible), there are still options available:

- **Desensitisation using Plasmapheresis**
- **Kidney Exchange Program (KEP), also known as Kidney Paired Donation**

WHAT IS DESENSITISATION?

Desensitisation is a medical process used to temporarily reduce or suppress antibodies within the immune system, allowing a kidney transplant to proceed between otherwise incompatible donor-recipient pairs.

This approach is considered when a recipient has antibodies that would normally attack the donor kidney. Such antibodies may develop due to:

- Blood group incompatibility
- A positive cross-match result
- Previous transplants
- Blood transfusions
- Pregnancy

Desensitisation protocols vary between transplant centres but involve two key strategies prior to transplantation:

Antibody Removal

- Harmful antibodies are removed from the bloodstream through a procedure known as plasmapheresis.
- This process works similarly to dialysis by filtering the blood and removing antibodies that may cause rejection.

Prevention of New Antibody Formation

Medications may be administered to prevent the production of new antibodies, including:

- Intravenous Immunoglobulin (IVIg)
- Rituximab
- Other targeted immunosuppressive therapies

These treatments help suppress B-cells and plasma cells responsible for antibody production.



UNDERSTANDING PLASMAPHERESIS

Plasmapheresis is similar to dialysis but specifically removes the plasma component of the blood where antibodies are found.

What Is Plasma?

Plasma is the clear, liquid portion of blood that carries: Red blood cells, White blood cells, Platelets, Nutrients, Hormones & Other substances throughout the body

Access Requirements

To undergo plasmapheresis, patients must have one of the following:

- A functioning arteriovenous fistula
- A graft
- A dialysis catheter

Procedure Overview

- Blood is withdrawn from the body and passed through a plasmapheresis machine.
- The machine separates and removes the plasma containing harmful antibodies.
- The filtered blood is then returned to the body.

Additional Treatment Requirements

- Multiple plasmapheresis sessions may be required before transplantation.
- Additional sessions may also be necessary after surgery.
- In selected cases, removal of the spleen (splenectomy) may be considered, as the spleen contributes to antibody production.



WHY IS DESENSITISATION NECESSARY?

A positive cross-match indicates that the recipient's blood contains donor-specific HLA antibodies that actively attack the donor's cells.

Without intervention:

- The transplanted kidney would be immediately recognised as foreign.
- The immune system would rapidly reject the organ.
- Transplantation would not be considered safe.
- Desensitisation modifies the immune response sufficiently to allow transplantation to proceed.



THE THREE-STEP DESENSITISATION PROCESS

Desensitisation generally begins 2 to 4 weeks before the planned transplant.

Step 1: Physical Antibody Removal

- Plasmapheresis is performed to remove anti-donor antibodies from the bloodstream.
- Multiple treatment sessions are usually required.

Step 2: Immune Suppression

Targeted therapies are administered, including:

- Intravenous Immunoglobulin (IVIG)
- Rituximab

These medications:

- Suppress B-cells and plasma cells
- Reduce the body's ability to produce replacement antibodies
- Help maintain compatibility before transplantation

Step 3: Final Crossmatch Testing

- Regular blood tests are performed throughout treatment.
- The goal is to convert the crossmatch result from positive to negative.
- Once a negative crossmatch is achieved, transplantation can proceed safely.



POTENTIAL RISKS

Antibody Rebound

- Antibodies may naturally return between 3 and 14 days after transplantation.
- This increases the risk of early antibody-mediated rejection.
- Published studies report a rejection risk of approximately 18% to 38%.
- Intensive post-transplant monitoring and treatment may be required.

Increased Infection Risk

- Strong immunosuppressive therapy weakens the body's natural immune defences.
- Patients may be more susceptible to serious viral and bacterial infections before and after transplantation.

Increased Risk of Rejection

- Despite treatment, antibody-mediated rejection remains possible.
- Ongoing monitoring and follow-up care are essential.

Treatment Limitations

- In some cases, antibody levels may be too high for desensitisation to be effective.
- The transplant may be considered too high-risk to proceed.

POTENTIAL BENEFITS

Improved Access to Transplantation

- Desensitisation allows transplantation in cases that would otherwise be impossible.

Survival Advantage

- Research has shown that patients who undergo successful desensitisation and transplantation generally have better long-term survival outcomes than patients who remain on long-term dialysis.



DONOR AND RECIPIENT REQUIREMENTS:

Recipients

- Must be actively listed on their transplant unit waiting list.
- All medical assessments must be up to date.

Donors

- Must complete the full donor evaluation process.
- Must meet all medical, psychological, and social assessment requirements.



APPROVAL PROCESS:

The following steps are typically required before transplantation can proceed:

1. Transplant physicians determine whether compatibility can be achieved through desensitisation.
2. All required medical evaluations are completed.
3. Approval is obtained from the relevant transplant review panel(s).
4. Required documentation is submitted to the Department of Health.
5. Department of Health approval is granted.
6. Final consultations, blood tests, and cross-match testing are completed.



FURTHER INFORMATION:

For questions regarding the possibility in Desensitisation contact your transplant team or transplant coordinator.

The donation process is built on informed consent, safety, and ethics, ensuring donors can make decisions freely and without pressure. Organ Donation is a Gift of Life. Trading in organs is illegal and prohibited!