

Induction Therapy in Kidney Transplant Recipients: A Consensus Statement of Indian Society of Organ Transplantation

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BACKGROUND

Kidney transplantation represents approximately 75% of all solid organ transplants in India, with nearly 85% sourced from living donors. Unlike many Western countries where deceased donor programs are more established, India remains predominantly reliant on living donor transplants. The public health system, diverse patient demographics, limited deceased donor availability, and resource variability across institutions influence transplant practices nationwide. The clinical and immunological characteristics of Indian transplant recipients also differ in meaningful ways from populations in whom most international guidelines have been developed.¹

Although the Kidney Disease: Improving Global Outcomes guidelines serve as a global benchmark, they

were formulated primarily in high-income countries with different patient profiles, infection risks, and healthcare infrastructures.^{2,3} In India, where infectious complications posttransplant are frequent, out-of-pocket expenditures are substantial, and immunological risk stratification is often constrained by cost or access, direct adoption of international induction therapy protocols is not always feasible or appropriate. Moreover, these guidelines were developed from evidence in predominantly Caucasian, deceased donor populations and during an era when cyclosporine was the standard of care—an immunosuppressive strategy now largely replaced by tacrolimus in India.⁴

Induction therapy reduces the risk of acute rejection and supports maintenance immunosuppression.

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In India, the most commonly used induction agents are rabbit antithymocyte globulin (rATG, Thymoglobulin) and interleukin-2 receptor blockers: Basiliximab and Simulect.⁵ However, in the absence of national guidelines or robust local data, the application of these therapies remains highly variable.²

RATIONALE FOR INDIAN CONSENSUS

In the absence of national guidelines, induction practices across India remain heterogeneous because of differing institutional resources, donor types, and infection risks. Although experienced clinicians often rely on individual expertise, early-career transplant physicians face challenges in navigating complex immunological and demographic scenarios without structured guidance. This consensus statement offers a unified, evidence-informed, and pragmatically designed approach that reflects Indian transplant realities and supports consistent, risk-adapted clinical decision-making.⁵

IMMUNOLOGICAL RISK ASSESSMENT

The Indian Society of Organ Transplantation consensus stratifies transplant recipients into low or high-risk categories based on immunological, clinical characteristics such as HLA mismatch, sensitization history and donor characteristics. This risk-based approach guides the choice and dosing of induction agents, aiming to prevent rejection while minimizing complications such as infection, cytopenia, and cost burden.

Key parameters considered include:

- Degree of HLA mismatch;
- Panel-reactive antibody levels and presence of donor-specific antibodies;
- ABO compatibility;
- Retransplantation or prior sensitization (eg, transfusions, pregnancies);
- Cold ischemia time and delayed graft function (particularly in deceased donor recipients);
- Donor-recipient age disparity and expanded criteria donors.

This stratification model reflects the unique challenges of the Indian transplant environment, where access to molecular testing may be limited and clinical risk surrogates often guide immunological decisions.

CONSENSUS HIGHLIGHTS

- Low immunologic risk: basiliximab or no induction, or low-dose rATG (1.5–2 mg/kg).
- High immunologic risk: rATG 3 (2.5–3.5) mg/kg (split dosing).
- Induction may be omitted when cost or infection risk outweigh benefit.
- Dose adjustments (eg, for cytopenia) and pediatric dosing may be individualized based on clinical context.
- No change in induction therapy choice or dose in the diabetics, elderly because of age >65 y, and deceased donor kidney transplantation with acute kidney injury and it should be used as per immunologic risk.
- Single-dose Rituximab 200 mg pretransplant in ABO-incompatible transplant.

ACCESS TO FULL DOCUMENT

For detailed recommendations, supporting rationale, and full consensus methodology, please refer to the full Indian Society of Organ Transplantation consensus at: <https://isot.co.in>.

IMPLEMENTATION CHALLENGES AND CONTEXTUAL RELEVANCE

The use of induction agents across India reflects a complex interplay of clinical judgment, resource constraints, and individual center experience. A lack of universal health coverage and inconsistent insurance access further complicate the ability to adopt uniform protocols. Some centers prefer interleukin-2 receptor blockers for their favorable safety profile, whereas others lean toward rATG in high-risk scenarios to reduce acute rejection episodes. In addition, decisions are often influenced by donor type, cost constraints, comorbidities such as leukopenia or thrombocytopenia, and regional variations in infection epidemiology.

Despite these efforts, several challenges persist in the standardized implementation of induction therapy. The absence of a centralized transplant registry in India limits the ability to analyze outcomes based on induction strategies at a national level. Most available evidence is derived from single-center, retrospective experiences, which may not be generalizable. Furthermore, there is limited access to advanced immunological profiling at many centers, which can compromise precise risk stratification. Nonetheless, the current consensus represents a foundational step toward improving consistency, safety, and efficacy of induction therapy in Indian kidney transplant programs.

GLOBAL RELEVANCE

India ranks third globally in total organ transplants and leads the world in living donor kidney transplantation. This depth of clinical experience, developed within a high-volume and resource-diverse healthcare system, provides valuable insights for transplant programs internationally, particularly in low- and middle-income countries that face similar financial and operational constraints. In contrast to protocols from high-income countries, which are often shaped by deceased donor predominance and supported by universal healthcare systems, the Indian consensus presents a pragmatic and scalable framework grounded in clinical diversity, cost awareness, and real-world applicability.

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