Poster Presentation：Kidney Transplantation and Regeneration
Poster No.：B0243
Abstract Submission No.：APCN20250070

The study on the expansion and function of Tregs from human PBMCs

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Abstract

Objectives:

Regulatory T cells (Tregs) constitute a vital subgroup within CD4+ T cells. These cells play a pivotal role in inducing immune tolerance, preserving immune homeostasis,and mitigating autoimmune diseases. Typically, Tregs are present in small numbers under normal physiological conditions. The current study aims to devise an effective method forexpanding human peripheral blood Tregs in vitro and subsequently analyzing the phenotype, purity, and function of these expanded Treg cells.

Methods:

Peripheral blood samples were collected from 11 healthy donors. Tregs were isolated from peripheral blood mononuclear cells (PBMCs) using magnetic-activated cellsorting (MACS) based on the expression of CD4+ and CD25+ markers. An optimized culture system was employed for the amplification of Tregs. The in vitro amplification efficiencyof Treg cells was assessed to evaluate the expression levels and purity of Treg cell-specific surface markers across various culture cycles. The analysis of Tregs involved using Flowcytometry to analyze various target markers, and Treg-related genes were analyzed using RT-PCR methods.

Results:

Treg cells were isolated via magnetic sorting and cultured for 11 days. The Tregs/PBMC ratio significantly differed between younger (<40 years) and older (>60 years) groups.Expanded Tregs showed clustering and increased geometrically from day 7. Flow cytometry revealed CD4+/CD25+ and CD25+/Foxp3+ cells increased 157- and 60-fold, respectively.Gene expression of CD25, Foxp3, IL-10, and CTLA-4 was upregulated. Notably, Tregs treated with ASC secretome showed increased CD25+, Foxp3+, and CTLA4+ expression,warranting further study on its proliferative effects.

Conclusions:

We have successfully developed a technical protocol for generating a substantial quantity of Tregs with high efficiency in vitro. These expanded Tregs consistentlymaintain FOXP3 expression and demonstrate potent immune suppression. This finding holds significant promise for adoptive Treg therapy in the treatment of graft-versus-hostdisease and autoimmune disorders

Keywords：Kidney transplantation, Regulatory T cell, PBMC

Poster Presentation：Kidney Transplantation and Regeneration
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Outcome of ABO-incompatible Live Donor Renal Transplant: Our Experience in Tertiary Care Center of Northwest India

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Abstract
Background: Renal transplantation remains the gold standard treatment for end-stage renal disease (ESRD), offering improved quality of life and increased survival rates for patients. This research paper provides a comprehensive overview of the current state of ABO-incompatible (ABOi) renal transplants, including their historical context, immunological challenges, clinical outcomes, and evolving protocols. Despite the greater risk, the survival rates of these kidneys are higher than those of cadaveric kidneys and comparable with ABO-compatible (ABOc) renal transplants.

Materials and methods: This is a prospective observational study conducted at a tertiary care center in northwest India. A total of 126 patients who underwent living donor ABOi renal transplant admitted under the department of nephrology were analyzed as per their demographic profile, desensitization protocols followed and clinical outcomes, and long-term patient and graft survival rates in ABOi kidney transplants (KT) compared to ABOc transplants.

Results: Patient survival in this study has been a 96.03% and graft survival was 92.06% at year 1 and 88.09 and 79.36% at year 5 which is comparable to ABOc at our hospital with patient survival 98% and graft survival 94% at year 1 and 90 and 85% at year 5.

Conclusion: Our series demonstrates the efficacy of ABOi transplant, with excellent survival of both the patient and the graft, without any increase in the incidence of infectious complications. Using a tailored desensitization technique, ABOi living-donor kidney transplant (LDKT) is a safe and feasible option for renal replacement therapy.

Keywords：ABO-incompatible, Kidney transplantation, Live donor transplant, Renal transplant.

Poster Presentation：Kidney Transplantation and Regeneration
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Demographic Disparity Analysis In Kidney Transplant: An Observational Study In A Tertiary Care Center In Northwest India

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Abstract
Background : Kidney transplantation is the treatment of choice for end stage renal disease as it provides the best hope for rehabilitation to normal life in these patients. Living donor transplants constitute the vast majority of all kidney transplants in India. Previous studies have shown that women not only donate live-related and unrelated kidneys more often, but are also less likely to receive a live kidney than men. Similarly, spousal donors fulfill the gap between the demand and availability of donors. Despite greater histo-incompatibility, the survival rates of these kidneys are higher than those of cadaveric kidney.

Method : This is a prospective observational study conducted at a tertiary care centre in northwest India, 1500 patients who underwent living donor renal transplant admitted under department of nephrology were analyzed as per there demographic profile including age, gender, relation of donor to the patient.

Results : In our study, average age of transplant recipients was 35 years and of transplant donors was 48 years. Our study observed that females were less likely than males to be recipients. 84% of transplant recipients were male. Among the renal donor 84% were female. Among the living related donor, related donors were predominant than unrelated donors among which parents contributed to maximum.

Conclusion : Study examines the demographic disparity in donation in kidney transplant. The study's findings expand the conception of kidney donation as solely altruistic and can help professionals pay attention to the complexity that women living kidney donors face.

Keywords：Kidney transplant, Live donor transplant, Spouse donor, Donor demographic Disparity, HLA incompatibility, Cadaveric Transplant

Poster Presentation：Kidney Transplantation and Regeneration
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Abstract Submission No.：APCN20250103

METTL3 Potentiates M2 Macrophage-Driven MMT to Aggravate Renal Allograft Fibrosis via the TGF-β1/Smad3 Pathway

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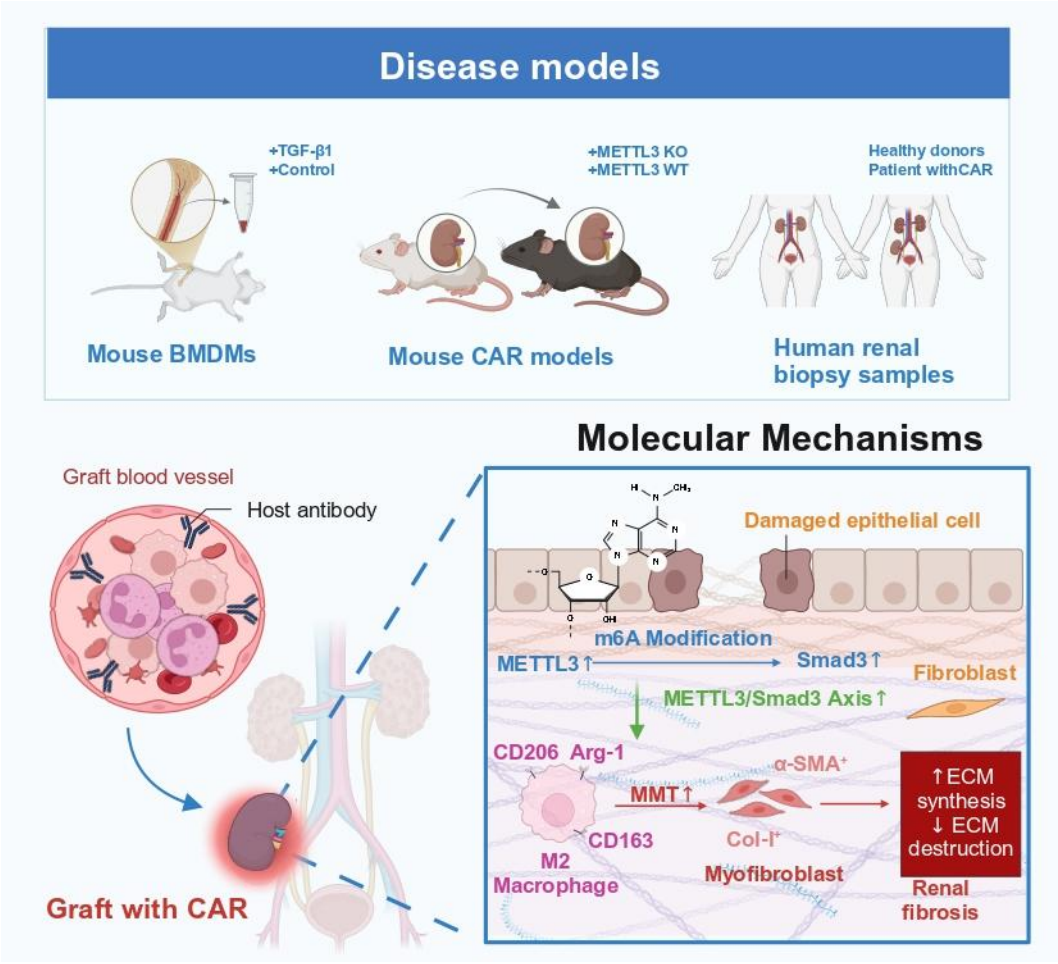
Abstract
METTL3, a key enzyme in N6-methyladenosine (m6A) modification, plays a crucial role in the progression of renal fibrosis, particularly in chronic active renal allograft rejection (CAR). This study explored the mechanisms by which METTL3 promotes renal allograft fibrosis, focusing on its role in the macrophage-to-myofibroblast transition (MMT). Using a comprehensive experimental approach, including TGF-β1-induced MMT cell models, METTL3 conditional knockout (METTL3 KO) mice, and renal biopsy samples from patients with CAR, the study investigates the involvement of METTL3/Smad3 axis in driving MMT and renal fibrosis during the episodes of CAR. We found that elevated m6A modification and METTL3 levels strongly correlated with enhanced MMT and increased fibrotic severity. METTL3 knockout (METTL3 KO) significantly increased the m6A modification of Smad3, decreased Smad3 expression, and inhibited M2-driven MMT. Smad3 knockdown with siRNA (siSmad3) further inhibited M2-driven MMT, while Smad3 overexpression rescued the inhibitory effects of METTL3 silencing, restoring M2-driven MMT and fibrotic tissue damage. Additionally, the METTL3 inhibitor STM2457 effectively reversed M2-driven MMT and alleviated fibrotic tissue damage in CAR. These findings highlight that METTL3 enhances M2-driven MMT in renal fibrosis during CAR by promoting the TGF-β1/Smad3 axis, suggesting that METTL3 is a promising therapeutic target for mitigating renal fibrosis in CAR.

Keywords：METTL3; TGF-β1/Smad3; chronic allograft rejection; macrophage-myofibroblast transition; renal fibrosis.


Disease models
+TGF-β1
+Control
+METTL3 KO
+METTL3 WT
Healthy donors
Patient withCAR
Mouse BMDMs
Mouse CAR models
Human renal biopsy samples
Molecular Mechanisms
Graft blood vessel
Host antibody
Graft with CAR
Damaged epithelial cell
m6A Modification
METTL3↑
Smad3↑
Fibroblast
METTL3/Smad3 Axis↑
CD206 Arg-1
α-SMA+
MMT↑
↑ECM synthesis
↓ ECM destruction
CD163
Col-I+
M2 Macrophage
Myofibroblast
Renal fibrosis

Poster Presentation：Kidney Transplantation and Regeneration
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Abstract Submission No.：APCN20250394

Mediterranean Diet Adherence and Kidney Function in Kidney Transplant Recipients : A Systematic Review

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Abstract

Objective

Kidney transplantation is considered the treatment of choice for end-stage kidney disease (ESKD), offering better long-term outcomes and quality of life (QoL) compared with dialysis treatment. The Mediterranean diet (MD) is a dietary pattern that fosters a high intake of fish, fruit, vegetables, legumes, nuts, and olive oil, together with a low intake of dairy and meat products. However, whether the Mediterranean diet adherence is associated with kidney function preservation in kidney transplant recipients (KTR) is unknown. This study aims to evaluate the adherence to the Mediterranean diet and its association with better kidney function among kidney transplant recipients.

Methods

The literature search was performed using the electronic databases PubMed, ScienceDirect, Nutrients, ClinicalKey, and Google Scholar until May 2025. We included cohort studies and case-control studies. Relevant studies were collected using the following search terms: kidney transplant, renal replacement therapy, chronic kidney disease, Mediterranean diet adherence, and dietary intervention.

Results

From the 161 articles that were screened, 4 articles are included. Adherence to the Mediterranean diet plays an important role in preventing and reducing CKD progression and lower albuminuria. The Mediterranean diet score was inversely associated with graft failure ($p=0.004$), kidney function decline ($p=0.003$), and graft loss ($p=0.006$). Consumption of a Mediterranean diet was shown to be beneficial in the long-term function of kidney allografts. Such benefits were thought to be mediated by the anti-inflammatory effects of omega-3 polyunsaturated fatty acids.

Conclusions

Mediterranean diet adherence has the potential for positive effects on kidney function among kidney transplant recipients. Nutritional counseling and dietary management should embrace not only the quantity and quality of food but also the environmental and social behaviors of patients with kidney disease. Further and long-term studies with a higher number of participants are necessary to investigate the impact of the Mediterranean diet on long-term outcomes and nutritional status of kidney transplant recipients.

Keywords：kidney transplant, renal replacement therapy, chronic kidney disease, Mediterranean diet adherence, and dietary intervention

Table 1. Characteristic of included studies.

Author (year), country	Study design	Intervention description	Duration	Sample size, age, sex	Result
Gomes-Neto et. al. (2020), Netherlands	Cohort study	Dietary intake: FFQ. Adherence to Mediterranean diet: Mediterranean Diet Score.	12 months	632 adults KTR with functioing graft for ≥1 tahun, 53 ± 13 years, 57% male	Adherence to the Mediterranean diet is **associated** with better kidney function outcomes in KTR **(p≤0.05).**
Boslooper-Meulenbelt et. al. (2021), Netherlands	Cross-sectional study	Food literacy: SPFL questionnaire.	12 months	148 adults KTR, 48 ± 66 years, 56% male	Higher levels of food literacy are **associated** with better adherence to a Mediterranean-style diet in KTR **(p≤0.001).**
Tarsitano et. al. (2022), Italy	Cross-sectional study	Adherence to the Mediterranean diet: MEDI-Lite questionnaire. Level of physical activity: IPAQ short Form.	3 months	255 adults KTR, 48 ± 62 years, 56.1% male	Adherence to the Mediterranean diet **was generally low** (p=0.618).
Falbo et. al. (2023), Italy	Cross-sectional, obserational study	Adherence to the Mediterranean diet: MEDI-LITE questionnaire.	3 months	322 adults KTR, 48 ± 62 years, 56.1% male	Adherence to the Mediterranean diet **was generally low**, and significantly lower among participants on dialysis (p< 0.001).

FFQ; Food Frequency Questionnaire, KTR; Kidney Transplant Recipients, SPFL; Self-Perceived Food Literacy; IPAQ, International Physical Activity Questionnaire

Poster Presentation：Kidney Transplantation and Regeneration
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Association between serum L-carnitine and aortic stiffness in patients with kidney transplantation

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Abstract

Background: L-carnitine is an important co-factor in fatty acid metabolism, and its deficiency is associated with insulin resistance, which is independently associated with arterial stiffness. Aortic stiffness is associated with aging-associated vascular diseases and is also an independent risk factor for cardiovascular morbidity and mortality. We evaluated the association between serum L-carnitine and aortic stiffness in kidney transplantation (KT) patients.

Methods: A total of 98 patients with KT were enrolled in this study. cfPWV was measured using the SphygmoCor system. Patients with carotid-femoral pulse wave velocity (cfPWV) >10 m/s were defined as the aortic stiffness group. Serum L-carnitine levels were detected using liquid chromatography-tandem mass spectrometry.

Results: 28 KT patients (28.6%) had aortic stiffness and higher percentages of diabetes (p = 0.031), were of older age (p = 0.011), and had higher systolic blood pressure (p = 0.010), serum fasting glucose level (p = 0.001), and lower serum L-carnitine levels (p < 0.001) compared to the control group. After adjusting for factors significantly associated with aortic stiffness by multivariable logistic regression analysis, serum L-carnitine (odds ratio [OR]: 0.940, 95% confidence interval [CI]: 0.903–0.977, p = 0.002), age (OR: 1.062, 95% CI: 1.000–1.127, p = 0.049) were independently associated with aortic stiffness in KT patients. After multivariable forward stepwise linear regression analysis, serum logarithmically transformed L-carnitine level (β = –0.321, adjusted R 2 change = 0.097, p < 0.001) was negatively associated with cfPWV values in KT patients.

Conclusions: Serum L-carnitine level is negatively associated with cfPWV values and is a biomarker for aortic stiffness in KT patients.

Keywords：Carotid-femoral pulse wave velocity, Kidney transplantation, Aortic stiffness, L-carnitine.

Poster Presentation：Kidney Transplantation and Regeneration
Poster No.：B0250
Abstract Submission No.：APCN20250814

Clinico-pathologic features, Outcomes and Assessment of 2018 Banff Working Group Histological classification of BK polyoma virus nephropathy: A single centre study

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Abstract
Introduction: Renal allograft remains susceptible to various insults, with BK polyomavirus-associated nephropathy (BKVN) recognized as a significant contributor to graft dysfunction and loss. Biopsy proven definitive BKVN affects 6% of renal transplant recipients. We analyzed graft biopsies using Banff 2018 working group classification for BKVN and correlated clinical presentation, graft function and factors affecting outcomes in different polyoma virus nephropathy classes.

Materials and Methods:1235 renal graft indication biopsies performed between January 2014 to December 2023. Biopsies were evaluated for BK polyoma virus using mouse monoclonal anti-SV-40 large T-cell antibody (Clone MRQ-4, Cell Marque) to look for characteristic nuclear staining and/ or intranuclear inclusions in renal tubular epithelial cells using Banff 2018 working group classification of BKVN. Interstitial fibrosis (ci score) was assessed. Both PVL score and ci score were used to determine PVN classes. Demographic details, biochemical records and plasma BK viremia results were obtained from hospital records. Statistical analysis was performed, P value of <0.05 was considered to be significant.

Results:23 biopsies of BKVN were identified, 20 cases had both intranuclear viral inclusions in tubular epithelial cells and IHC positivity with monoclonal antibody against anti-SV-40 large T-cell antigen. 3 cases showed just IHC positivity with lack of intranuclear inclusions. Majority had type 1 viral inclusions (17/23). PVN class 2 was seen in 60.86%, class 1 in 26% and remaining were class 3. Statistically significant difference was seen with respect to ci score(0.005), ct score (0.046) and S.Cr at follow up (6 months ,Class I vs. Class III 0.002; Class II vs. Class III <0.001 and at 1 year Class I vs. Class III 0.057; Class II vs. Class III 0.031). Difference was not significant with respect to S.Cr at biopsy, serum BK viremia at biopsy or at 1 year follow up. On follow up, graft loss occurred in 7.14% (1/14) and 33.33% (1/3) of patient in PVN class 2 and class 3 with none in class 1. 2(14.28%) patients of PVN class 2 died during follow up, none in PVN class 1 or class 3.

Conclusion: Present study shows significant difference in both the ci and ct scores among different PVN classes. On follow up graft function worsened with class progression. Graft failure was more common in PVN class 2 and 3 compared to class 1. Our study validates that BKVN class identification by Banff criteria is helpful in understanding about clinical outcome, graft function and progression to graft failure.

Keywords：Renal Transplantation BK virus Classification Nephropathy Graft Outcome

Poster Presentation：Kidney Transplantation and Regeneration
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Differential effects of calcineurin inhibitors on plasma cells: Potential therapy for antibody-mediated rejection

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Abstract

Calcineurin inhibitors have reduced acute cellular rejection rates, but long-term allograft survival remains compromised by antibody-mediated rejection (AMR), which is now the primary concern in transplantation. AMR's pathophysiology involves organ damage from prolonged exposure to alloantibodies produced by plasma cells. The effects of calcineurin inhibitors on plasma cells remain unclear. Our study found that cyclosporine (CsA) induced endoplasmic reticulum (ER) stress in plasma cells, which was lower in the presence of FK506. The expression of CD138 in plasma cells can prolong the half-life of plasma cells, but CsA could downregulate CD138 expression and inhibit the p-STAT3 signaling, thus leading to cell death. Our findings offer an updated insight into the pharmacological effects of CsA on plasma cells, providing valuable options for tailoring treatment strategies in transplant patients undergoing treatment for AMR.

Keywords：Cyclosporine, Tacrolimus (FK506), Antibody-mediated rejection, ER stress, Plasma cell, CD138

Poster Presentation：Kidney Transplantation and Regeneration
Poster No.：B0253
Abstract Submission No.：APCN20251249

The Growing Demand for Organ Transplantation in the Philippines: Insights from Human Organ Preservation Effort (HOPE) and Philippine Network for Organ Sharing (PhilNOS)

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Abstract
Introduction:
Organ transplantation is a life-saving therapy for patients with end-stage organ failure. In the Philippines, the increasing demand for transplantable organs—particularly kidneys—poses a serious public health challenge. The Human Organ Preservation Effort (HOPE) at the National Kidney and Transplant Institute (NKTI) plays a central role in addressing this gap. This study analyzes recent trends in organ waiting lists and transplant activities, highlights NKTI-HOPE's contributions, and explores the implications of rising transplant candidates and shifting donor dynamics. These insights are essential for guiding healthcare resource allocation, enhancing public education campaigns, and improving patient outcomes.
Methods:
Data were sourced from the Department of Health–Philippine Network for Organ Sharing (PhilNOS) and NKTI-HOPE. The study period covers January 2020 to June 2025. Primary focus was on deceased donor kidney waitlist enrollees, with national liver and lung transplant candidates included for broader context. Kidney Transplant Census data, categorized by donor type (deceased, living related, and living non-related), were analyzed to identify trends in donor sources and transplant volumes.
Results:
NKTI-HOPE data show a consistent rise in kidney waitlist enrollees: 78 (2020), 75 (2021), 99 (2022), 179 (2023), and 284 (2024), reaching 337 by June 2025. Nationally, there were 437 kidney candidates as of June 2025, with NKTI-HOPE managing 77.11% (337). The total waiting list also included 15 liver and 4 lung candidates. The Kidney Transplant Census reveals a continued reliance on living donors. Deceased donor kidney transplants peaked at 31 in 2022 but declined to 13 in 2024. In contrast, living related donors consistently provided 105–157 transplants annually, and living non-related donors contributed 91–142. By June 2025, transplant counts were 7 deceased, 65 living related, and 68 living non-related.
Conclusion:
The growing number of Filipinos awaiting kidney transplantation highlights an urgent public health concern. NKTI-HOPE plays a vital role in managing transplant candidates, with data confirming a heavy dependence on living donors amid inconsistent deceased donor availability. Addressing this challenge requires a comprehensive national strategy—strengthening organ donation advocacy, expanding procurement systems, and reinforcing institutional support for HOPE and PhilNOS—to improve survival and quality of life for patients nationwide.

Keywords：Organ Donation and Transplantation

Human Organ Preservation Effort (HOPE)

HOPE-NKTI DECEASED DONOR WAITINGLIST ENROLEES FOR KIDNEYS		
Year	**No. of Patients**	**Annual Growth (%)**
2020	78	–
2021	75	-3.85%
2022	99	32.00%
2023	179	80.81%
2024	284	58.65%
As of June 2025	337	+18.66% (half-year)

NUMBER OF TRANSPLANT CANDIDATES ON THE WAITING LIST AS OF JUNE 2025	
KIDNEYS	437
LIVER	15
LUNG	4
TOTAL	**456**

**Data Source:* *DOH-Philippine Network for Organ Sharing (PhilNOS) and NKTI-HOPE*
***Data doesn't include people waiting for tissues and cornea*

NATIONAL WAITINGLIST FOR KIDNEYS	
Other Transplant Centers	100(22.89%)
NKTI-HOPE	337 (77.11%)
Total Enrolled to the National Kidney Donor Waitinglist (PhilNOS)	**437**

KIDNEY TRANSPLANT CENSUS			
Year	**From Deceased Donors**	**From Living Related Donors**	**From Living Non-Related Donors**
2020	5	108	91
2021	19	105	93
2022	31	139	142
2023	27	156	134
2024	13	157	130
As of May 2025	7	55	58