9th - 11th October 2025

Transplant International

Abstracts of the 34th Annual Meeting of the German Transplantation Society, Essen, Germany

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Introduction

Wir freuen uns sehr, dass die 34. Jahrestagung der Deutschen Transplantationsgesellschaft dieses Jahr vom 09.-11.10.2025 in Essen stattfindet. Wir freuen uns über die vielfältigen Abstracts und damit auf spannende Vorträge und Diskussionen.

Auch dieses Jahr wird es wieder eine Masterclass und vielfältige andere Fortbildungsmöglichkeiten sowie erneut eine "Women in Transplantation Sitzung" geben. Ein Schwerpunkt unseres Kongresses wird in der Maschinenperfusion liegen, die ja demnächst auch in der Organtransportroutine der DSO eine wichtige Rolle spielen wird. Wir fokussieren auf neue operative Methoden und haben in vielen Bereichen des Kongresses Beiträge zur Transplantation von Kindern und Jugendlichen integriert. Auch transplantationspolitische Themen werden nicht zu kurz kommen. Viele der Sitzungen sind organübergreifend gestaltet und werden besonders einen interdisziplinären Austausch fördern.

Wir freuen uns sehr, Sie alle in der Philharmonie in Essen zu sehen!

We are delighted that the 34th Annual Meeting of the German Transplantation Society will take place in Essen this year from October 9-11, 2025. We are looking forward to the diverse abstracts and thus to exciting presentations and discussions.

Once again this year, there will be a master class and a variety of other training opportunities as well as another "Women in Transplantation Session". One focus of our congress will be on machine perfusion, which will soon also play an important role in the DSO's organ transport routine. We are focusing on new surgical methods and have integrated contributions on the transplantation of children and adolescents in many areas of the congress. Transplantation policy topics will not be neglected either. Many of the sessions are cross-organ and will particularly promote an interdisciplinary exchange.

We look forward to seeing you all at the Philharmonie in Essen!

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Programme

Wednesday, 08 October 2025

13:20 - 14:50	Commission: Ethics	Pediatrics working group	Commission: Organ removal	Commission: Pancreas
14:55 - 16:25	Commission: Heart / Lungs	Commission: Lung		Organ donation working group
16:30 - 18:00	Commission: Immunology	Commission: Liver/Intestine Commission		Commission: Psychology/ Psychosomatics
18:00-20:00	DTG Board Meeting			

Thursday, 09 October 2025

08:00-10:00				Interprofessional work
10:00-10:15	Break			
10:15-11:30	Opening Ceremony			
11:30-11:45	Break			
11:45-13:00	Benefits of digitalization in TX medicine	Poster presentations Immunology/ Infectiology	Lung	DTG mentoring program, final presentations
13:00-14:40	Break / Symposia			
14:40-15:55	Plenary session I: Future of transplantation in the NRW model project			
15:55-16:15	Break			

16:15-17:30	Minimalinvasive Tx	Heart	Masterclass I	History of transplant medicine
17:30-18:00	Get Together			
18:00-20:00	DTG General Meeting			

Friday, 10 October 2025

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09:15-10:15	Break / Symposia			
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15:40-16:15	Closing and invitation DTG 2026			

Oral Presentations

Lung

WS03-05

Soluble Cytokine Receptor And Ligand Analysis In Graft-Preservation Solution And Recipient Plasma Reveals Compartment-Specific Immune Regulation In Clinical Lung Transplantation (LTx)

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Introduction

Graft preservation method – standard of care (SOC) vs. ex-vivo lung perfusion (EVLP) in lung transplantation (LTx) could impact ischemia-reperfusion injury (IRI) and, hence, primary graft dysfunction (PGD) by triggering immune responses and endothelial damage. Here we analyzed the dynamics of soluble cytokine- and growth factor receptors (SR) in graft preservation solutions and recipient plasma and correlated them to clinical parameters.

Methods

Using Luminex-based multiplex assays, 14 SR and 15 of their ligands were quantified in lung perfusion solutions and recipient plasma pre-Tx, post-Tx, 24h, 3wks. The groups comprised lung preservation with standard cold storage (SCS, n=148), adjusted standard of care (SOC, n=25), EVLP (n=36) and EVLP Extended Criteria (EC, n=11).

Results

In EVLP perfusates, sTNFR1, sTNFR2, and sVEGFR1 increased directly after EVLP with slower kinetics of sRAGE, IL-1R2, IL-4Ra, sCD25(IL-2Ra), and the IL-6R component gp130. Concentrations of most SRs were higher in EVLP, while sVEGFR1, sRAGE, sIL-1R2 and sgp130 showed different levels between EVLP and EC. Except sRAGE, SR levels were generally higher in plasma than in perfusate. In plasma, sgp130 and sTNFR1 significantly ($p<0.05$) peaked directly after LTx, whereas sIL-1R2 and sIL-2Ra reached highest levels after 24h post-LTx. 3wks after LTx, sVEGFR1 and sIL-1R2, returned to baseline levels, while sIL-2Ra, sTNFR1

and sTNFR2 remained elevated. 3 wks post-LTx, sIL-4R and sVEGFR2 were even reduced below pre-LTx levels. The kinetics of SRs in recipient plasma differed the most early after LTx by all preservation methods but were comparable at 3 wks. In all perfusate groups and post-LTx plasma, sVEGFR3 levels remained relatively stable whereas sVEGFR1 and sVEGFR2 displayed dynamic changes, pointing to an involvement of the vascular endothelium in addition to immune cells.

Conclusion

The preservation methods could impact the profiles of SR in the graft storage solution and in recipient plasma, potentially contributing to IRI and PGD development. These results broaden our understanding of immune alterations after LTx which may be helpful for improvement of lung preservation procedure.

Problems After Transplantation: Infections

WS17-05

Donor-Derived Infections In Deceased Donor Organ Transplantation In Germany From 2016-2024

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On behalf of the DSO-SAE/SAR group.

Introduction

In many cases, organ transplantation is still the only therapeutic option that can sustainably improve the life expectancy and quality of life of patients with terminal organ failure. Despite continuous improvements in donor and organ assessment, there remains a residual risk of transmission of diseases from the donor to one or more recipients. Here we report our experience on a subgroup of suspected and proven/probable donor-derived infections (DDI) in Germany over a period of 9 years from 2016-2024.

Methods

All incoming serious adverse event (SAE) and serious adverse reaction (SAR) reports from January 1, 2016 to December 31, 2024 were evaluated for suspected DDI. The analysis of the degree of imputability followed the definition of the US Disease Transmission Advisory Committee (DTAC). Only probable and proven cases according to the classification of the DTAC were defined as DDI and are presented here.

Results

During the study period, 11034 donors in Germany donated post-mortem organs to 32335 recipients. In the same period, there were 92 reports of recipients with suspected donor-derived infections. Of these, 39 cases were bacterial infections, 27 cases were fungal infections, 24 cases were viral infections, and two cases were parasitic infections. Multi-resistant bacteria were detectable in 18 cases (18/39, 46%) and mycobacteria tuberculosis in five other cases. In 48 cases (48/92, 52 %) a proven/probable DDI occurred, affecting 67 recipients. Eight of the 67 recipients (8/67, 12%) died due to the DDI, three from a Candida infection, two from a BoDV infection and one each from an infection with toxoplasmosis, HHV-8 virus and CMV/EBV virus. In addition, 11 recipients (11/67, 16%) lost their graft due to the DDI. Overall, the DDI rate for donors was 0,43 % (48/11034), for recipients 0,21 % (67/32335).

Conclusion

DDI are rare in solid organ transplantation, but when they do occur, they are associated with organ loss and death in a high percentage of the affected recipients. Careful and detailed donor evaluation can help improve recipient safety [1,2].

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Living donation

S07-03

Health Status Of Living Kidney Donors In Germany – Insights Into The German Living Donation Registry SOLKID-GNR (Safety Of The Living Kidney Donor-German National Registry)

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Introduction
The prospective Living Donation Registry SOLKID-GNR was established to provide clinical outcome data on living kidney donors (LD) in Germany.

Methods
Clinical baseline data collected of LD in 32 of 36 transplant centers (TC) in Germany were analysed (01/2020 to 01/2025).

Results
1237 LD were enrolled (62.8% female, mean age 54.5±10 years, range 20-83 years). The general health condition was described as good to excellent by 99.8% of LD. 40.9% reported no previous illnesses or regular medication (women 36.8% vs. men 47.7%; p<0.001). 28.3% of LD were taking antihypertensives (women 27.1% vs. men 30.2%; p=0.240), with a well controlled blood pressure. BMI was 26.1±3.5 kg/m^2. Grade I or II obesity was present in 13.9% of LD (women 13.5% vs. men 14.6%). 8.96% of LD had treated hyperlipidemia (women 7.3% vs. men 11.8%, p=0.009), 0.41% of LD reported diabetes.11.7% of women and 13.3% of men were active smokers. At least 50.8% (women 49.3% vs. men 53.2%, p=0.218) of LD showed one or more cardiovascular risk factor. 5.0% of LD reported having a heart, blood, or blood vessel disease; 3.9% a history of malignancy, 0.24% a fatigue syndrome, and 5.4% pre-existing mental health conditions. No gender differences were detected regarding pre-existing cardiovascular conditions. In Germany LD demonstrate kidney function within the normal range (95±13 ml/min/1.73m^2). 13.5% of LD had a creatinine clearance <80 ml/min/1.73m^2; no LD had an eGFR <60 ml/min/1.73m^2. Multivariate analysis showed that in the overall cohort and separately for women and men, only age had a significant influence on kidney function.

Conclusion
LD in Germany mostly describe their general health condition to be good to excellent. However about 41% LD in Germany are persons with pre-existing medical problems. More than half of the LD suffers from a relevant cardiovascular risk factor. In comparison to international literature, German LD are mostly older and present more frequently co-morbidities. Whereas more than 60% of the LD are female, there are no striking or medical important gender related differences. Structured regular follow-ups of LD at the TC is mandatory to provide adequate medical care, especially in LD with a medical history.

Liver

WS09-05

Protective Effects Of Hypothermic Oxygenated Machine Perfusion On Bile Composition After Liver Transplantation – Findings From A Randomized Controlled Trial

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Introduction
In liver transplantation, bile acid toxicity is associated with damage to both hepatocytes and cholangiocytes. End-ischemic hypothermic oxygenated machine perfusion (HOPE) mitigates ischemia-reperfusion injury (IRI) and prevents biliary damage. However, its impact on bile

composition remains unclear, as bile samples are typically unavailable after transplantation, resulting in a lack of evidence.

Methods

Bile was collected within three days post-liver transplantation in a multicentric randomized controlled trial (NCT03124641), from 26 patients receiving extended criteria donation (ECD) allografts from donors after brain death (DBD). Fourteen donor livers were static cold stored (SCS group), while 12 livers underwent end-ischemic HOPE after cold storage (HOPE group). Bile composition and metabolic parameters were analyzed with mass spectrometry. Expression of bile transporters and enzymes was assessed in liver biopsies before and after transplantation.

Results

Hydrophobic BAs were positively correlated with IRI severity, such as serum ASAT and ALAT, and decreased postoperatively for all allografts (POD-1 vs. POD-2/POD-3 both $p<0.001$). Expression of the hepatocyte bile transporters ABCB4 and ABCG8 decreased after reperfusion ($p=0.045$; $p<0.001$). The HOPE-group had higher total-and primary bile acid (BA) levels on postoperative day (POD)-3 compared to cold stored livers ($p=0.047$, $p=0.027$) and a significant increase in the fraction of primary BAs from POD-1 to POD-3 ($p=0.005$). HOPE-treated organs exhibited an increase in phosphatidylcholine and phosphatidylethanolamine levels leading to higher phospholipid levels on POD-3 compared to the SCS group ($p = 0.043$) and a decline in BA/PC ratio.

Conclusion

This is the first randomized study demonstrating effects of HOPE treatment on bile lipid secretion and bile composition following ECD-DBD liver transplantation. Protection from bile toxicity may represent a novel mechanism underlying the effects of HOPE.

Kidney

WS05-05

Targeted Treatment With Pegcetacoplan For Post-Transplant Recurrent C3G Or Primary (Idiopathic) IC-MPGN In The VALIANT Phase 3 Trial

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Introduction

C3 glomerulopathy (C3G) and primary immune complex membranoproliferative glomerulonephritis (IC-MPGN) are rare diseases caused by uncontrolled C3 activation. After kidney transplant, ~89% of C3G/primary IC-MPGN patients (pts) relapse, leading to high graft loss and mortality. No effective therapies exist to prevent or treat recurrence. Pegcetacoplan (PEG) binds selectively to C3 and C3b to strongly block C3 activation. In the Phase 3 VALIANT trial (NCT05067127) in pts aged ≥12 years with native or post-transplant recurrent C3G/primary IC-MPGN on stable regimen, PEG cleared glomerular

C3 in 71% of pts and achieved significant and sustained reduction in proteinuria across subgroups with stabilization of estimated glomerular filtration rate (eGFR). Here we report outcomes for the post-transplant recurrence subgroup.

Methods

VALIANT pts were randomized 1:1 to receive PEG or placebo (PBO) for 26 weeks. Randomization was stratified by transplant status. The primary endpoint was log-transformed ratio of urine protein-to-creatinine ratio (UPCR) at Week 26 vs. baseline. Key secondary endpoints included proportion of pts achieving a composite renal endpoint (≥50% UPCR reduction and ≤15% eGFR reduction), C3c staining on kidney biopsy, and eGFR change.

Results

Of 124 pts in VALIANT, 9 pts (PEG, n=5; PBO, n=4) had post-transplant recurrent C3G or primary IC-MPGN. At Week 26, PEG-treated pts achieved a robust 64.9% reduction in UPCR vs. PBO (95% CI: -85.9, -12.9; p=0.0241). 3 of 5 pts (60%) on PEG achieved the composite renal endpoint vs 0/4 on PBO. All adult pts on PEG with available biopsy data had reduction in C3c staining vs 1/4 PBO pts (25%). Stabilization of eGFR was also achieved (+9.3 mL/min/1.73 m^2 relative difference vs PBO). There were no safety concerns, deaths, rejection episodes, or graft losses.

Conclusion

These results demonstrate that PEG halts the disease process in C3G/primary IC-MPGN, confirming a strong disease-modifying effect. PEG is the first therapy to significantly improve proteinuria, clear C3 deposits, and stabilize eGFR in post-transplant recurrent C3G/primary IC-MPGN. PEG demonstrated similar safety and efficacy in both post-transplant and native C3G/primary IC-MPGN.

Problems After Transplantation: Rejection

WS13-02

Ein Kombiniertes Modell Aus Relativer Und Absoluter dd-cfDNA Unterstützt Die Differenzierte Erkennung Von Rejektionen Nach Nierentransplantation

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Introduction

Die donorspezifische zellfreie DNA (dd-cfDNA) ist ein etablierter Schädigungs-Biomarker nach Nierentransplantation. Jüngste Erkenntnisse deuten darauf hin, dass die Kombination von prozentualen (%) und quantitativen (cp/ml) dd-cfDNA-Werten für die klinische Entscheidungsfindung von Vorteil ist. Um diesen Effekt weiter zu untersuchen, haben wir ein Modell zur Auswertung eines kombinierten Datensatzes drei publizierter Kohorten [1-3] entwickelt.

Methods
Bei insgesamt 360 Patientenproben (298 mit begleitender Biopsie und 62 klinisch stabil) wurde die dd-cfDNA mit zwei Versionen eines Droplet-Digital-PCR-Assays gemessen, die gleichwertige Ergebnisse erbringen. Die kombinierten Daten wurden zunächst randomisiert in eine kleine Discovery Gruppe (DG) und eine Validierungsgruppe (VG) eingeteilt. Die aus der DG abgeleiteten Parameter wurden für alle weiteren Berechnungen verwendet.

Results
In der DG (Abstoßung: N=44; Keine Abstoßung: N=43) wurde ein Modell entwickelt, das % und Kopien/ml Plasma wie folgt kombiniert: $M=(\%/x)^{x1}+(cp/y)^{y1}$. Das endgültige Modell ergab x=0,75%; x1=0,5; y=32cp/ml; y1=0,6. Die Ergebnisse zeigen, dass das Modell bei allen bewerteten Parametern besser abschneidet als die % dd-cfDNA und cp/mL allein. Bemerkenswert ist, dass nur das kombinierte Modell alle Formen der Abstoßung (ABMR N=61, TCMR N=21, Mixed N=12, DSA-MVI N=12 und Borderline N=29) von unauffälliger Pathologie in der Biopsie unterscheidet (P<0,02), während andere Pathologien (CNI-Tox. N=20, IFTA N=21, GN N=20, BKV N=47, ATI N=13, UTI N=6, andere N=15) nicht signifikant unterschiedlich sind. Außerdem unterschied nur das kombinierte Modell alle letztgenannten Pathologien von der TCMR-Gruppe.

Conclusion
Wir haben drei klinische Kohorten kombiniert, um ein Modell zu entwickeln, das den prozentualen Anteil und die Menge der dd-cfDNA parallel berücksichtigt. Dieses Modell übertrifft jeden der beiden dd-cfDNA-Werte (% und cp/ml) allein. Die Ergebnisse belegen nachdrücklich, dass die dd-cfDNA ein spezifischer Biomarker für die Nierenabstoßung ist und nur in seltenen Fällen bei anderer Transplantatpathologie erhöht ist.

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Record Long-Term Problems After Tx

WS15-05

Prevention Of Human Papillomavirus (HPV) Infection In Pediatric Kidney (KTx) And Liver Transplant Recipients (LTx) And In Pediatric Patients With Advanced Chronic Kidney Disease (CKD): A Prospective, Multicenter Vaccine Surveillance Trial (HPVaxResponse Study)

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Introduction
Due to their immunosuppressive therapy, solid-organ transplant (SOT) recipients bear an increased risk of HPV-associated malignancies compared to healthy individuals. Also, immunosuppressive medication potentially reduces the immune response to HPV vaccines.

Methods
We therefore performed a prospective, multicenter study to investigate the immune response to HPV vaccination in pediatric KTx, LTx and CKD patients. Type-specific HPV vaccine titers (cLIA) and neutralizing antibodies (PBNA) were measured before as well as 1-3 months and 15-21 months after HPV vaccination.

Results
136 patients (93 KTx, 16 LTx, 27 CKD; median age at vaccination 13.4 years), who received a 9vHPV vaccine, were included in this analysis. 66.2% of patients received a 2-dose, and 33.8% a 3-dose vaccination schedule. HPV vaccine titers and neutralizing antibody levels were significantly lower in pediatric KTx than in CKD or LTx patients after vaccination. HPV seropositivity rates were also significantly lower in pediatric KTx than in CKD and LTx patients after vaccination. Depending on the HPV type, 22%-34% of KTx patients did not develop HPV vaccine titers (cLIA) above the cut-off value, defined by the manufacturer. For HPV 18, the immune response to 9vHPV vaccination was lower in both KTx and LTx patients. Female sex (OR 3.8), age at vaccination (OR 1.6), hypogammaglobulinemia (OR 7.3), MMF-based immunosuppression (OR 6.0) and a high overall immunosuppressive score (OR 1.4) were risk factors associated with lower HPV seropositivity rates in pediatric KTx recipients after 9vHPV vaccination.

Conclusion
HPV seropositivity rates and neutralizing antibody titers after 9vHPV vaccination are lower in pediatric KTx than in LTx or CKD patients, due to their more intensive immunosuppressive maintenance therapy. One third of KTx recipients do not develop HPV vaccine titers above the cut-off value. HPV vaccination should be performed early and preferably before transplantation. A 3-dose HPV vaccination schedule should be applied to all transplant recipients, as recommended by national and international guidelines. HPV vaccine titer measurement and additional vaccine doses in non-responders may be considered in KTx patients.

Basic Science

WS16-04

Cellular And Humoral Immunogenicity Of Respiratory Syncytial Virus Vaccination In Solid Organ Transplant Recipients

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Introduction
Respiratory syncytial virus (RSV) prefusion F-based vaccines have recently been approved for patients at highest risk for RSV-disease. However, knowledge on these vaccines in immunosuppressed individuals is limited. Therefore, vaccine-induced immunity and reactogenicity was analyzed among chronic kidney disease (CKD) patients, and kidney (KTx) and lung transplant (LuTx) recipients.

Methods
In this observational study, RSV-specific antibodies and T-cell responses were quantified and characterized in 44 KTx, 30 LuTx recipients, and 19 CKD patients before, 13-18 days and 3 months after a single dose of a protein-based RSV-vaccine, mostly RSVPreF3-AS01$_E$ (KTx: 98%, CKD: 100%, LuTx: 67%). Reactogenicity was self-reported using a standardized questionnaire.

Results
Vaccination led to a significant induction of RSV-specific IgG antibodies and CD4 T cells in KTx-recipients ($p<0.0001$)

with no difference between RSV-A and RSV-B specific T cells, indicating substantial T-cell cross-reactivity. Vaccine-induced immunogenicity was comparable between KTx recipients and CKD patients, while LuTx recipients showed slightly higher IgG levels but significantly lower CD4 T-cell frequencies (p=0.034). Moreover, vaccine-induced CD4 T-cell levels were significantly lower in SOT recipients in the first year post-transplant (p=0.020). IgA and CD8 T cells were not induced by the vaccine. Vaccine-induced RSV-specific CD4 T cells showed upregulation of CTLA-4, and were predominantly polyfunctional, co-expressing IFNγ, IL-2 and TNF. Three months postvaccination, vaccine-induced CD4 T cells and the expression of CTLA-4 declined, while IgG levels remained stable. Vaccination was well tolerated with either no adverse events or mainly pain at the injection site.

Conclusion

A single dose of a protein-based RSV-vaccine led to a strong induction of IgG and CD4 T cells with cross-reactivity between RSV-A and B strains but had a lower effect in lung transplant recipients and those recently transplanted. Our findings suggest RSV-vaccination is effective in patients with kidney diseases and transplant recipients but may be more beneficial if given after the first year post-transplant.

WS16-05

Long-Lived Tissue-Resident Memory T And NK Cells In Clad Explant Lung Parenchyma - Consequences For Tolerance And Rejection

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Introduction

Chronic lung allograft dysfunction (CLAD) is a major contributor to limited long-term outcomes following lung transplantation (LTx). Yet, the precise mechanisms contributing to CLAD remain unknown. Directly after LTx, we demonstrated the migration of donor-derived T/NK cells into the recipient's periphery, initiating a transient chimerism of donor cells in recipient blood. Simultaneously, infiltration of recipient leukocytes is supposed to start. However, nothing is known about the long-term persistence of donor cells and the adaptation of recipient leukocytes in the allograft.

Methods

Lung parenchyma explanted in the course of CLAD for Re-LTx (n=3) was subjected to FACS analyses including lineage, memory, and tissue-residency (TRM) markers in combination with HLA class I allele-specific mAb to discriminate between donor and recipient leukocytes. Meta data such as age, sex, HLA-mismatch etc. were collected.

Results

In Re-Tx explant lung tissue up to 9 years after first LTx, donor T and NK cells, but no B and myeloid cells, could be identified by donor HLA staining. Donor T/NK cells displayed a TRM phenotype with CD69 +/- CD103 expression. Moreover, we detected at least 3 distinct recipient T/NK cell subsets of circulating ($CD69^-CD103^-$), TRM-like ($CD69^+CD103^-$) as well as true TRM ($CD69^+CD103^+$) cells. True TRM T cells exhibited a memory phenotype ($CCR7^-$) and expressed additional markers of tissue residency (i.e., CD49a, PD-1). Thus, donor TRM and TRM-like T/NK cells can persist for years after LTx creating a local chimerism. Moreover, recipient leukocytes can migrate into the allograft and acquire a TRM and TRM-like phenotype supporting the concept of a pulmonary tissue-adaptation.

Conclusion

To the best of our knowledge, we are the first to demonstrate this local long-term chimerism by persistence of donor T/NK cells. In parallel, recipient TRM and TRM-like T/NK cells display a TRM adaptation in explant CLAD lung tissue. Our findings may help to better understand the potential of chimerism between

a potentially tolerogenic donor T cell compartment as well as an alloreactive recipient T cell compartment, potentially contributing to CLAD development.

WS16-06

Characterization Of Circulating Donor Cells In Lung Transplant Recipients - Implications For Tolerance Development

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Introduction

Survival rates of LTx recipients compared to other SOT recipients are lower due to the development of primary graft dysfunction (PGD) early after LTx. Long-term outcome is hampered by chronic allograft dysfunction (CLAD) resulting from poorly defined immune mechanisms. Subsequent to LTx, the migration of lymphocytes from the transplanted lung into the periphery induces a transient donor cell in recipient blood. We hypothesize that this early chimeric immune constellation has an impact on CLAD development.

Methods

Donor-derived lymphocytes were detected in recipient blood (n=44) by HLA class I allele-specific antibodies and phenotyped by FACS immediately after (T0), 24h and 3wks post- LTx. Sc-mRNA sequencing of T cells was conducted in explant lung parenchyma (n=16). Clinical parameters, i.e., PGD, CLAD, were recorded of all patients.

Results

In peripheral blood of all 44 recipients, donor-derived T/NK cells were detected at T0, T24 and 3wks after LuTx, generating a transient chimerism. These donor T/NK cells exhibited higher CD69 expression and functional capacity (i.e. IFN-γ) compared to recipient cells. They were mostly $CCR7^-$ memory T cells but did express neither additional TRM (CD103, CD49a) nor activation markers (CD25, HLA-DR). While PGD was independent from donor T/NK cell frequencies in recipient blood, patients without CLAD 2 yrs after Tx had higher frequencies of primarily $CD8^+$ donor T cells. ScRNA sequencing of explant parenchyma confirmed the existence of distinct TRM-like ($CD69^+CD103^-CD49a^-$) and true TRM ($CD69^+CD103^+CD49a^+$) T cell subsets.

Conclusion

Our results demonstrate that donor T/NK cells found early in the periphery of lung transplant recipients are TRM-like subsets distinct from circulating as well as true TRM cells present in lung tissue, since they express CD69 but lack expression of other classical TRM markers. Donor T cells may be clinically relevant in terms of tolerance induction and long-term survival after transplantation.

AG Young Transplant Medicine II

AG Junge TX Med.2-2 Immunosuppression After Liver Transplantation: A Survey In DACH Countries Indicates A Broad Heterogeneity In Clinical Practice

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Introduction
Sufficient immunosuppressive therapy is a key element in preserving organ function after liver transplantation. While specific guidelines on the recommended immunosuppressive medication exist, these do not include the exact dose and treatment duration of the different immunosuppressive agents.

Methods
We assessed standards for postoperative immunosuppressants in 20 liver transplantation centers across Germany, Austria, and Switzerland. Relevant factors including induction therapy, use of calcineurin inhibitors and mycophenolate as well as protocols for steroid tapering and long-term immunosuppressive medication were evaluated through a survey.

Results

Our findings reveal considerable variations among institution-specific standards across the participating centers. While most centers follow similar protocols regarding the types of medication used for postoperative immunosuppressive therapy, substantial differences exist in the therapy initiation, duration, and dose.

Steroid tapering showed a large range in the dosing during intraoperative administration (250-1000 mg) and in the initial therapeutic regimen (20-250 mg on postop day 1) as well as in the tapering during the first week after liver transplantation. After postop day 8, most centers apply a steroid dose with a range of 5-50 mg.

Although both Prograf and mycophenolate mofetil (MMF) therapy were used as standard therapy by 80% of the participating centers, the time point of initiation varies notably. Prograf therapy was initiated in 40% of cases on the day of surgery, 15% on day 1, 15% on day 2, 5% on day 3, and 5% on day 4. Similarly, MMF therapy also shows variation in treatment initiation ranging between the day of surgery and postop day 7 (35% on day of surgery, 25% on day 1, 10% on day 2, 5% on day 5, 20% day 7 and further; 20% used MMF occasionally).

Conclusion
In Conclusion, the immunosuppressive therapy after liver transplantation remains individually tailored to both center-specific requirements and relevant patient characteristics. The range of treatment approaches among centers highlights the need for regular exchange of experiences between transplant centers and re-evaluation of immunosuppressive recommendations.

AG Junge TX Med.2-3 Association Of Intrapatient Tacrolimus Variability And Concentration-To-Dose Ratio With Allograft Rejection, Opportunistic Infections And Graft Dysfunction In Pediatric Kidney Transplant Recipients

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Introduction
Data on the relevance of tacrolimus intrapatient variability (TacIPV) and concentration-to-dose ratio (C/D ratio) as an approximation of tacrolimus metabolism for predicting outcome in pediatric kidney transplant (pKTx) recipients are scarce.

Methods
We conducted a multicenter retrospective study of 255 pKTx recipients from the CERTAIN registry. TacIPV was quantified as the coefficient of variation (CV%) during months 6-12 post-transplant. In addition, the C/D ratio, corrected for body surface area, was calculated for the first 6 months post-transplant. Cutoffs were determined by minimization of log-rank P values: 23% for TacIPV and 1.0 for C/D ratio. Rejection episodes were classified according to the Banff criteria in the period following marker quantification.

Results
A total of 13,159 tacrolimus trough blood levels were analyzed, with a median of 52 (IQR, 41-63) measurements per patient. High TacIPV (>23%) during months 6-12 post- transplant was associated with an increased risk of rejection beyond 12 months post- transplant (hazard ratio (HR) 1.04, 95% CI 1.01-1.06, P = 0.002; Kaplan-Meier analysis P = 0.002). Similarly, a low C/D ratio (<1.0), i.e. rapid tacrolimus metabolism, during the first six months was associated with a higher risk of rejection between months 6 and 12 (inverse HR 3.13, 95% CI 1.01-9.09, P = 0.04; Kaplan-Meier analysis P = 0.011).

Conclusion
This largest to date multicenter study determines pediatric-specific cutoff values for TacIPV and tacrolimus C/D ratio as a predictive marker for graft rejection. Patients with these risk factors should be closely monitored and their immunosuppressive therapy adjusted accordingly.

AG Junge TX Med.2-4 Outcomes Of Left Lateral Segment vs. Whole Liver Grafts In Pediatric Liver Transplantation: A Single-Center Comparison

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Introduction
Pediatric liver transplantation (PLT) remains the gold standard for treating end-stage liver disease in children. While outcomes have improved, the impact of donor type (living vs. deceased) and graft type (left lateral segment [LLS] vs. whole liver graft [WLG]) on outcomes remains debated.

Methods
This retrospective single-center study included 96 pediatric liver transplants between 2019 and 2024. Of these, 57 received LLS grafts (23 from living, 34 from deceased donors), and 39 received WLGs. Demographics, graft characteristics, outcomes, complications, and survival were compared.

Results
One-year patient survival was similar across groups: deceased LLS 88.2%, living LLS 95.7%, and WLG 100% (p = 0.21). Graft survival was also comparable (deceased LLS 94.1%, living LLS 91.3%, WLG 97.4%; p = 0.67).Acute cellular rejection rates did not differ significantly (deceased LLS 38.2%, living LLS 17.4%, WLG 29.7%; p = 0.23). Biliary complications were similar (living LLS 26.1%, deceased LLS 29.4%, WLG 30.8%; p = 0.89). Vascular complications were more frequent in the living LLS group. Hepatic artery thrombosis occurred in 13.0% of living LLS recipients, vs. 5.1% in WLG and 0% in deceased LLS (p = 0.14). Portal vein thrombosis was seen in 21.7% (living LLS), 2.6% (WLG), and 2.9% (deceased LLS) (p = 0.059). Median age and weight were lowest in living LLS (8 mo, 7.0 kg), followed by deceased LLS (21 mo, 11.0 kg), and highest in WLG (70 mo, 20.0 kg; p < 0.001).

Conclusion
LLS grafts from both deceased and living donors yield outcomes comparable to WLGs in children. Despite younger age and lower weight, living donor recipients did not show higher morbidity, though vascular complications were more common. LLS grafts remain a vital and safe option to meet pediatric transplant demand.

AG Junge TX Med.2-6 Clinical And Histopathological Determinants For Kidney Allograft Survival In The Eurotransplant Senior Program (ESP) At The Time Of Allocation

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Introduction
To address the shortage of organs for kidney transplantation, the Eurotransplant Senior Program (ESP) was established to enhance the allocation of kidneys from elderly donors. This study aims to evaluate posttransplant outcomes of deceased donor grafts and identify prognostic factors within the ESP population that were already available at the time of allocation.

Methods
We analyzed patient data from 64 ESP recipients and their donors transplanted at our center between 2017 and 2022. Time-zero biopsies were analyzed using AI image analysis software/ machin learning for glomerular density and glomerulosclerosis to assess potential predictive value of automated tissue analysis during allocation in typical off-duty hours of dedicated nephropathologists for individualized allocation decicions.

Results
One-year patient and allograft survival rates were 96.9% and 85.9%. Delayed Graft Function occurred in 29.7% of cases, with recipient coronary heart disease, BMI-disparities, and prolonged cold ischemia time as major predictors (P<0.05). Histopathological analysis revealed that the degree of glomerulosclerosis (AI-assessed) and interstitial fibrosis and tubular atrophy (IFTA) were associated with graft failure in multivariable analyses (P<0.05). Arteriolosclerosis correlated with a higher risk for primary non-function (P<0.05). The number of HLA mismatches was not significantly associated with graft outcome in this ESP cohort.

Conclusion
Including prognostic baseline characteristics as well as histopathological AI analysis available at the time of the organ offer may furrther optimize the organ-acceptance process in terms of more individualized allocation decisions and thereby improve allograft survival within the Eurotransplant European Senior Programme. In addition, our ESP cohort benefitted from transplantation, demonstrating superior survival when compared to data of continued dialysis.

Psychosocial Aspects of Transplantation

WS19-04

Attitudes Towards Living Kidney Donation – Analyses Of The German Living Donation Registry SOLKID-GNR (Safety Of The Living Kidney Donor-German National Registry)

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Introduction
The prospective National Living Donation Registry SOLKID-GNR was established to provide clinical outcome data on living kidney donors (LD) in Germany.

Methods
Attitudes towards the situation before donation in LD of 32 of 36 transplant centers in Germany were analysed (01/2020 to 01/2025).

Results
Attitudes towards the situation before donation in LD of 32 of 36 transplant centers in Germany were analysed (01/2020 to 01/2025).

Results
Altogether, 1237 LD were enrolled (62.8% female, mean age 54.5±10 years, range 20-83 years). Donations were made predominantly to partners and children. The majority of donors stated that they initiated the donation themselves (women 94% vs. men 88%; p<0.001). For men, the initiative to donate more often came from the family, the organ recipient, or their relatives (women 2.9% vs. men 7.6%; p<0.001). The initiative less often came from a physician (women 2.9% vs. men 3.9%; p < 0.001). 85.7% of women and 80.1% of men (p=0.013) stated that they "knew immediately that they would definitely donate." Accordingly, when asked "How difficult was the decision to donate?" 42.3% of women and 32.0% of men (p=0.003) answered they offered their donation spontaneously.

Only 1.9% donors reported feeling pressured to donate (women 2.3% vs. men 1.3%; p=0.030). Four donors rated the feeling of pressure as moderate to very strong; all four donors donated for their child.

Women and men made the decision to donate at a comparable rate (88.4% within 3 months). Medical diagnostics for donation typically took more than 6 months (70.7%). The information about living donation provided by the transplant center were rated as very good or good by 97%. Only a small proportion (0.8%) described the information process as poor or very poor.

Conclusion
LD in Germany were in 62% female. The majority of LD initiated the donation themselves and the decision was spontaneously. A very small amount of donors (1.9%) felt pressed to donate. Medical diagnostics typically took more than 6 months and nearly all donors were satisfied with the information provided by the transplant center.

WS19-05

User Engagement And Non-Adherence In Kidney Transplant Aftercare: Exploratory Findings From MACCS A Telemedical Care Concept

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Introduction

Telemedical care (TC) can reduce non-adherence (NA) and lower complication rates via remote patient monitoring (RPM). Therefore, the kidney transplantation (KTX) outpatient center at Charité developed MACCS [1], an app-based TC concept integrating chat, patient-reported vital signs and well-being, medication and labs.

As effective RPM depends on sustained user engagement, this study investigates whether factors related to adherence also relate to user engagement, potentially limiting the distinct benefits of TC.

Methods

This was a monocentric, prospective cross-sectional study with 204 adult kidney transplant recipients enrolled since 2020. NA was assessed by the BAASIS questionnaire [2], and user engagement by the number of patient-reported well-being entries per week in MACCS within ±30 days of questionnaire completion. Potential predictors included adherence-related factors assessed by A-14 questionnaire [3] (therapy adjustments, practical issues, negative attitudes, forgetfulness) and demographic characteristics.

Results

Weekly user engagement showed a median of 1.78 entries/week (IQR 0.89–4.78; max 20.3) with a bimodal distribution at 1 and 7. In total, 41.8% of patients reported at least one NA event (missed or delayed dose of an immunosuppressant) within the last 4 weeks. 21.1% reported 1, 9.8% 2, and 13.9% ≥3 events.

Higher user engagement was associated with higher age ($r = 0.41$, $p < 0.001$) and a more favorable A-14 ($r = 0.25$, $p < 0.001$). More time since last KTX was negatively associated with user engagement ($r = -0.21$, $p = 0.003$).

Higher NA in BAASIS defined as a higher number of reported NA events was associated with a more unfavorable A-14 ($r = -0.31$, $p < 0.001$). Higher age showed a non-significant trend toward lower NA ($p = 0.065$), while time since last KTX was not associated with NA.

Additionally, higher user engagement showed a non-significant trend toward lower NA ($r = -0.12$, $p = 0.099$).

Conclusion

Factors influencing low user engagement and NA are likely to overlap. As higher age positively correlated with engagement, older adults represented an engaged user group. Diverging links with time since last KTX suggest differing behavioral dynamics.

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Poster Presentations

Poster Session 01: Immunology / Infectiology

PV01-01

Robust Humoral And Cellular Immune Responses To RSV Vaccination In Dialysis Patients: Implications For Transplantation Medicine

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Introduction
Respiratory Syncytial Virus (RSV) poses a significant threat to immunocompromised individuals, including dialysis patients and organ transplant recipients. Infections can lead to severe complications, and may delay or jeopardize surgery or post-transplant recovery. Effective vaccination strategies are therefore critical in both pre- and post-transplant care. The recent approval of an RSV vaccine offers a promising tool for improving infection prevention in this vulnerable population.

Methods
23 haemodialysis patients over the age of 50 years were vaccinated 1 time with RSV vaccine *Arexvy*. Patients blood was analyzed before and 2, 5, 8 and 16 weeks after vaccination. RSV IgG-titers were measured via ELISA Assay and the frequency of RSV specific T cells after restimulation of isolated peripheral blood mononuclear cells with RSV peptides. The main immune cell types were assessed, and an in-depth characterization of B cell and T cell subpopulations were performed using multi-color flow cytometry.

Results
Analyzing humoral response kinetics, we found a significant increase in RSV IgG levels observed only after 8 weeks in all patients. By week 16 post-vaccination, 22 out of 23 patients had detectable RSV-specific IgG, with all individuals showing an strong increase in antibody levels. At the cellular level, a significant rise in RSV-specific $CD4^+$ T cells producing IL-2, IFN-γ, and TNF was observed as early as two weeks after vaccination. This immune response was accompanied by a typical T and B cell reaction, characterized by an increase in effector

T cells, as well as switched memory B cells and plasmablasts. Interestingly, we did not observe any changes in the serum cytokine profile after vaccination.

Conclusion

RSV vaccination elicits a strong and sustained humoral and cellular immune response in dialysis-dependent individuals, a population often considered immunologically compromised. These findings have important implications for transplant medicine: many dialysis patients are on the transplant waiting list or have undergone recent transplantation. Effective RSV immunization could play an important role in reducing infection-related morbidity in both pre- and post-transplant settings.

PV01-02

The Unreliability Of MFI Values In HLA Antibody Screening: The Way Out Of This Dilemma

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Introduction

HLA antibody detection via Luminex was introduced over 20 years ago. It is used for pretransplant risk assessment and posttransplant monitoring. Although the assay is simple and straightforward the interpretation of the results remains a conundrum. Relying to mean fluorescence (MFI) value is problematic. The day-to-day variation is significantly large, and the user variation beyond acceptable ranges. The value deciding over positive or negative reactions or the cut-off value differs from laboratory to laboratory. This relative value decides whether a patient has specific HLA antibodies or not. In this case, an offer can be denied. In addition, the value is used to diagnose the occurrence of HLA-specific antibodies after treatment like absorption, plasmapheresis, or transplantation.

Methods

To circumvent the problems, we introduced the term ratio. For each serum sample, a paired sample from before the treatment is run in parallel. The ratio of post-treatment to pretreatment can be used to characterize antibody dynamics: a ratio above 1 reflects increased antibody production and a ratio below 1 indicates a decrease of antibodies in the serum. This value offers the possibility to make more informed and adaptive treatment decisions. Another simpler, equitable and cost effective method is the Introduction of the DAQS (Density-driven, Adaptive, and Quantitative Scoring), a probabilistic method for interpreting fluorescent intensity values.

Results

This approach analyses density curves, revealing a bimodal or "camel-hump"-shaped distribution. The underlying positive and negative distributions are modelled by decomposition. A logistic function is fitted between the two populations to map fluorescent intensity values to probabilities of positivity. Using the ratio over 50 patients were analyzed while DAQS is in testing. The ratio can lead to reliable medical decisions after testing while DAQS is still under review for its potential to help with data interpretation.

Conclusion

However, to enable better comparability between different centers, we recommend standardization of the analysis and resulting data between the different centers for this highly transplant-relevant assay.

PV01-03

Insights Into The Interplay Between Senescent Cells And Immune Cells In The Kidney Microenvironment

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Introduction

Senescent cells emerge in response to transplant-related stressors such as ischemia-reperfusion injury and rejection. They enter permanent cell cycle arrest, resist apoptosis, and develop a senescence-associated secretory phenotype (SASP) characterized by pro-inflammatory and matrix-remodeling factors, which disrupt the kidney's regenerative capacity and contribute to graft dysfunction. The accumulation of senescent cells results from both cellular stress and inadequate immune clearance which is made worse in transplantation due to immunosuppressive therapy.

Methods

We analyzed kidneys from aged (20–24 months, n=30) and young (3–5 months, n=15) mice. Immune cell populations (macrophages, T cells, B cells, plasma cells, NK cells) were characterized via immunohistochemistry. Senescent cells were identified using SA-β-Gal staining and RNAscope ISH targeting p16 ^{INK4a}. Gene expression in the kidney cortex was assessed using Nanostring nCounter.

Results

Aged kidneys exhibited a significantly larger number of senescent cells as demonstrated by increased p16 ^{INK4a} staining (2.22 ± 1.23 vs. 0.22 ± 0.17 area per HPF in young mice) and increased SA-β-Gal staining (1.23 ± 0.74 vs. 0.02 ± 0.01 area per HPF in young mice). With older age, we found a significant increase in immune cell infiltration (9.99 ± 4.77 vs. 2.81 ± 0.97 cells per HPF in young mice), predominantly macrophages and T cells, concentrated in the kidney cortex. Macrophages showed enhanced differentiation into polarized subpopulations. Accordingly, transcriptomic analysis revealed the upregulation of SASP genes with an increase in inflammatory and fibrosis-related pathways. We found colocalization of immune cells in proximity to senescent tubular cells.

Conclusion

These findings demonstrate a spatial connection between senescent and immune cells in light of a functioning immune response. In our current studies, we investigate whether senolysis, ie, the removal of senescent cells, also changes immune cell infiltration. Understanding the interplay between senescence and immune response is crucial to improve transplant outcomes. Targeting senescent cells could offer a new strategy to enhance graft survival and long-term function.

PV01-04

Age-Dependent Patterns Of Herpes Infections In Kidney Transplant Recipients

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Introduction

Herpes viruses represent relevant opportunistic infections in kidney transplant recipients.

Methods

We evaluated 572 adult kidney transplant recipients from the DZIF Transplant Cohort, all of whom underwent transplantation at the University Hospital Heidelberg between 2012 and 2023. Clinical events were tracked until December 2024 and categorized by age groups: <40 years (n=147), 40–60 years (n=279), and >60 years (n=146).

Results

CMV viremia incidences in the first year were comparable across age groups: 13.6% in recipients <40 years, 14.6% in those 40–60 years, and 16.4% in those >60 years. In the >60 years group, cumulative incidence rose to 21.5% by year 5. Recipients >60 years showed higher peak CMV viremia levels and experienced more frequent organ complications (19.2%). Reinfection rates were highest in >60 years (46.2%) and 40–60 years (45.7%), compared to 28.6% in those <40 years (p=0.03). Herpesvirus infections beyond CMV exhibited a cumulative incidence of 6.1% at 1 year, increasing to 11.8% at 5 years. A significant proportion were diagnosed beyond the first year. VZV infections, all presenting as herpes zoster, had a cumulative

incidence of 2.5% at 1 year, rising to 7.2% at 5 years. 90% of VZV infections in recipients over 60 years occurred beyond the first year, with a median time to infection of 825 days (IQR = 494-1223). HSV infections had a cumulative incidence of 3.1% at 1 year, 4.5% at 5 years, and 6.0% overall. Also, a considerable proportion was diagnosed after the first year, particularly in older recipients, with 46% of cases presenting post-year 1. Among these, 61.5% presented as pneumonia, whereas in younger recipients all HSV cases manifested as herpes labialis. Four cases of EBV-associated PTLD were reported, at a median of 266 days (IQR 241–335). 75% occurred in recipients >60 years, including one case requiring transplant nephrectomy.

Conclusion

Age-specific patterns highlight the need for tailored monitoring strategies in kidney transplant recipients. Older recipients may benefit from extended herpes virus surveillance due to the increased risk of late-onset viremia, reinfections, and organ complications.

PV01-05

Donor-Transmitted Cancer And Donor-Derived Cancer In Organ Donation And Transplantation In Germany From 2016-2024

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Introduction

Transmission of a malignant tumor from the donor to the recipient is a risk that results in high morbidity and mortality. The reporting of serious adverse events (SAR) and serious adverse reactions (SAR) as part of a vigilance and surveillance (V&S) system may help to better assess the risk for the transmission of donor-transmitted cancer (DTC).

Methods

All SAR cases from 1.1.2016 - 31.12.2024 regarding the possible transmission of a malignant tumor from the donor to the recipient(s) were analyzed. The assessment of imputability was done according to the grading system established by the US Disease Transmission Advisory Committee (DTAC). DTC was defined as a malignant tumor that was already present in the donor at the time of transplantation and the transmission was assessed as proven or probable. A donor-derived cancer (DDC) was defined as a malignant tumor that developed from cells of the transplanted organ after transplantation.

Results

11034 donors donated post-mortem organs to 32335 recipients. During the analyzed period, there were 78 reports of recipients with a malignant tumor where the tumor was suspected be donor transmitted. A proven/probable DTC from the donor to the recipient(s) occurred in 24 cases affecting 32 recipients. Overall, the mortality of DTC was high (18/32, 56 %). The worst outcome was reported for liver recipients: Of 13 liver recipients with DTC, eleven died, including five with adenocarcinoma and two were retransplanted. The mean time from transplantation until diagnosis for DTC was 7 months (median 4,5). In 54 cases, transmission could not be confirmed after extensive examination: possible (5), unlikely (12), excluded (7), not assessable (2), DDC (28). The mean time to diagnosis for DDC was 9,9 years (median 8,8). Overall, the tumor transmission rate for donors was 24/11034 (0,22%), for recipients 32/32335 (0,10 %).

Conclusion

In summary, DTC and DDC are rare events in organ donation and transplantation, however, mortality is high, especially if a tumor is transmitted to a liver recipient. Therefore, careful medical history, a thorough physical examination and a comprehensive clinical diagnosis are important to improve the safety of recipients [1,2].

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PV01-06

Kinetics Of Interferon-Beta-Expression In A Rodent Renal Transplant Model

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Introduction
Type 1 Interferons (T1IFN) are immune mediators associated with injury in warm ischemia of the kidney. However, data on their role in cold ischemia (CI) is scarce. Former results of our group showed an elevated release of T1IFN in rat kidney transplants (KT) with a longer CI. Aim of our study was to explore the role of T1FN in CI with the purpose of immunologic conditioning.

Methods
Kidneys of Fischer rats were perfused at 4°C with UW-CS or HTK or Custodiol-N (CN) and harvested. The left kidneys underwent a normothermic *ex vivo* machine perfusion with Krebs-Henseleit buffer (KHB) as a model of reperfusion. The right kidneys were stored at 4°C as controls. In some experiments, inhibitors of the cGAS/STING system or other immunosuppressants were added to KHB for perfusion. For *in vitro* experiments, porcine aortic endothelial cells (PAEC) were exposed to 4°C in UW-CS, HTK, HTK with deferoxamine (HTKD), CN or Custodiol-MP (CMP) for 4 or 16 hours then rewarmed to 37°C in KHB for 3 hours. Moreover, the Fischer-to-Lewis rat KT model was employed. The recipient rats were sacrificed 2 h, 24h, 28 days or 12 weeks after KT for study of the grafts. Expression of T1IFN from kidney or cell lysates was studied via RT-PCR.

Results
Ex vivo normothermic perfusion of the kidneys increased IFN-β expression 250-fold. Inhibition of cGAS/STING reduced this effect. Application of chloroquine had a similar impact. IFN-β expression rose markedly in PAEC on rewarming after 16 hours of cold storage in UW-CS, HTK or HTKD. A 4-hour cold storage or the use of CN or CMP prevented this effect. Kidney grafts showed a 25-fold increased IFN-β expression 2 h after KT, which decreased markedly after 24 h and normalized in 28 days. Nevertheless, a robust increase of over 3000-fold was detected 12 weeks after KT.

Conclusion
Simulated reperfusion after CI of rat kidneys increases the expression of IFN-β which is mediated by the cGAS/STING system and could implement a role for free DNA in the cytosol. This elevation of IFN-β could be reproduced in a rat KT model with intriguing kinetics. PAEC showed a similar increase in IFN-β expression upon rewarming. In Conclusion, endothelial cells are a potential source of IFN-β production.

PV01-07

Sensitive Assessment Of BK Polyomavirus Specific T Cell Immunity In Transplant Recipients

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Introduction
In hematopoietic stem cell transplant (HSCT) recipients, the BK polyomavirus (BKPyV) can lead to severe hemorrhagic cystitis. In kidney transplant recipients, the virus can cause BKPyV-associated nephropathy (BKPyVAN), one of the main causes of dysfunction and graft loss. To eliminate reactivated BKPyV, symptomatic patients can be treated with a reduction in immunosuppressive therapy, cidofovir or virus-specific T cells (VST), but this is costly. In the case of BKPyV DNAemia, assessing whether the infection is likely to be self-limiting or not remains a challenge. Strong T cell responses could protect against a symptomatic infection. However, due to the rather low frequency of BKPyV-specific T cells, highly sensitive tests need to be established.

Methods
In the current study, we optimized an interferon-gamma-ELISpot assay in 50 healthy adult control subjects. Antigen-specific stimulation was performed with two viral BKPyV peptide pools, derived from large T (LT) and viral protein 1 (VP1), and 400,000 PBMC were added to each cell culture. In parallel to the controls, we examined 17 adult HSCT recipients and two adult kidney transplant recipients.

Results
In the healthy controls we observed antigen frequencies in the range of 3-8 LT-specific spots and 3-12 VP1-specific spots (95% confidence interval of the median), i.e. a frequency of reactive cells of 0.0008-0.002% and 0.0008-0.003%, respectively. In the first sample of the HSCT patients (usually at symptom onset), we observed specific T cell frequencies in the range of healthy controls, whereas in the follow-up samples, maximal responses to LT and VP1 were on average 2.0 and 1.8 times higher than in controls (p=0.04 and 0.3, respectively).

Conclusion
In Conclusion, the ELISpot we developed appears to be sensitive enough to monitor T cell responses against BKPyV in transplant recipients. It may therefore be suitable to determine whether cellular immunity is strong enough to control symptomatic BKPyV infection; this will be investigated in a subsequent study.

PV01-08

Assessment Of Donor-Specific Human Leukocyte Antigen Antibodies Following Pediatric Liver Transplantation: Predictors, Protectors And Clinical Relevance

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Introduction
After pLT (pediatric liver transplantation), significance and management of donor-specific antibodies (DSA) against human leukocyte antigen (HLA) remain undefined. Aim was to gather more information on occurrence, predictors for, protectors against and the clinical impact of DSA.

Methods
161 pLT patients, treated between 2000 and 2021, were compared retrospectively monocentric regarding anti-HLA DSA (MFI (mean fluorescence intensity) cutoff >1000)). Clinical characteristics, laboratory results and outcome in routine group (RG, n=142, routine DSA-testing) and hepatopathy group (HG, n=19, DSA-testing defined by transaminases elevated over twice the reference value and/or fibrosis ≥F2) were examined.

Results
40% of patients (57/142) in RG and 32% (6/19) in HG were DSA+ (39%, 63/161 of all patients, of which 13%, 8/63 clinically relevant). Most frequent subtypes of DSA were HLA-DQ3, -DQ1, -DQ2 (RG) and HLA-DQ2, -DR15 (HG). MFI was higher for anti-HLA-II DSA (15257 DSA+ vs. 5500 DSA-, p=0.005) and especially, with AMR (antibody-mediated rejection) (20295 DSA+ with AMR vs. 14475 DSA+ without AMR, p=0.0427).

Potential predictors for DSA included age at pLT, re-transplantation, deceased donor organ, cold ischemia time >8h and cystic fibrosis. Graft survival was poorer with DSA (RG 74% DSA+ vs. 95% DSA-, p=0.007, HG 67% DSA+ vs. 100% DSA-, p=0.0007), as was patient survival in HG (33% DSA+ vs. 100% DSA-, p=0.003).

Conclusion
DSA were detectable in 39% and associated with AMR in 13% of children after pLT. Outcome is reduced with DSA. New potential predictors for DSA and AMR were identified. DSA diagnostics are recommendable after pLT.

PV01-09

End-Stage Lung Diseases Differentially Impact The Immune Cell Composition In Lung Parenchyma And Mediastinal Lymph Nodes

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Introduction
Lung transplantation (LTx) is the ultimate option for patients suffering from end-stage lung-diseases (ELD), including chronic obstructive pulmonary disease (COPD), interstitial idiopathic pulmonary fibrosis (IPF) and pulmonary arterial hypertension (PAH). Little is known about the immune cell composition in these ELD lungs. Hence, we compared the composition of paired ELD parenchyma (Par) and mediastinal lymph nodes (LN) obtained from explanted lungs in the course of LTx and their potential association to ELD pathophysiology.

Methods
Immune cell composition of digested Par and LN was determined by flow cytometry and scRNA-Seq. Lung tissue of patients with COPD (n=16), IPF (n=11) and PAH (n=5) was compared to tumor-adjacent 'healthy' lung tissue (n=16) as well as to paired LN. These recipient LN were also compared to donor LN (n=13). Meta data such as age, sex and primary graft dysfunction (PGD) were available for clinical associations.

Results
Leukocytes were generally enriched in diseased Par (>50% in COPD). Lymphocytes displayed the main leukocyte subset in all LN (>90% of $CD45^+$ cells) and healthy/COPD Par (60%). Granulocytes were the major subset in IPF and PAH Par and significantly increased in PAH LN. Highest $CD4^+/CD8^+$-ratios were found in COPD Par (increased $CD4^+$ T cells) and IPF LN (decreased $CD8^+$ T cells). $CD4^+CD25^{high}CD127^{low}$ regulatory T cells were highest in LN and enriched in IPF Par. NK and $CD8^+$ T cells displayed "memory-like" immunoregulatory phenotypes ($CXCR6\uparrow$ $CX3CR1\downarrow$) in ELD Par. In all ELD Par, $CD4^+$ and $CD8^+$ T cells, primarily with $CD69^+$ tissue-resident memory (TRM) phenotype $\pm CD103$ ($CD8^+ > CD4^+$), constituted the major lymphocyte subset (increased in COPD/IPF (>50%)), whereas TRM T cells were very low (<5%) in LN, indicating clearly separated TRM vs rather circulating repertoires.

Conclusion
Our immune profiling data argue for a link between ELD and the immune repertoire, indicating that each ELD is characterized by a unique immune cell composition in both lung parenchyma and LN, especially regarding TRM T cells. We

are currently analyzing the spatial distribution of these subsets and the cytokine microenvironment in our ELD cohort.

PV01-12

Respiratory Syncytial Virus Immunity In Solid Transplant Recipients Compared To Healthy Controls

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Introduction
Solid organ transplant recipients are at increased risk of respiratory syncytial virus (RSV) infections with severe disease and serious outcome due to inadequate humoral and cellular immune responses. Until now, knowledge of general RSV-specific immunity in SOT recipients compared to healthy controls is limited.

Methods
In this cross-sectional study, 71 healthy controls as well as 105 kidney and 48 lung transplant recipients were recruited from April 2024 to January 2025. RSV-specific IgA and IgG were quantified by ELISA and RSV-specific CD4 and CD8 T-cells were analysed using flow cytometry.

Results
Overall, 94% of all individuals had detectable RSV-specific IgG with no difference in IgG-levels between the groups (p=0.279). RSV-specific IgA levels were largely below the detection limit and similarly low in all patient groups (p=0.110). While more than half of all healthy controls (58%) and kidney transplant recipients (54%) had specific CD4 T cells above detection limit, significantly less lung transplant recipients (29%) had detectable RSV-specific CD4 T-cells (p=0.0045). Accordingly, RSV-specific CD4 T-cell levels among healthy controls (0.03(IQR 0.05)%)and kidney transplant recipients (0.03 (IQR 0.04)%) were significantly higher than in lung recipients (0.02 (IQR 0.03)%, p=0.0021). Overall, 70% of all individuals had no RSV-specific CD8 T cells, with no difference between groups (p=0.58).

Conclusion
Lung- and kidney transplant recipients had similarly high RSV-specific IgG levels as compared to healthy controls, whereas IgA- and CD8 T cell levels were low in all groups. In contrast, kidney transplant recipients and healthy controls were more likely to have detectable RSV-specific CD4 T cells with significantly higher CD4 T-cell levels compared to lung transplant recipients. These data provide knowledge on natural immunity as a basis to evaluate immunogenicity of RSV-vaccines in transplant recipients.

PV01-14

Reactivation Of EBV, CMV And BKV Are Associated With An Increased Expression Of IL-18, ALCAM, CD44, E-Selectin And VCAM-1 And Elevated PWV/IMT Values Revealing A Higher Risk Of Atherosclerosis

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Introduction
Atherosclerosis is the known key risk factor of cardiovascular diseases (CVDs). Studies have shown that patients with a chronic kidney disease (CKD) are at a higher risk for atherosclerosis, which is even more prominent in kidney transplant patients due to immunosuppression associated viral reactivations.

Methods
To assess the prevalence of viral reactivation and its risk of atherosclerosis, we analyzed the reactivation of latent viruses (EBV, CMV, BKV) in a cohort of elderly patients.

Results
Blood samples of 587 patients were analyzed showing a 35.78% incidence rate for a viral reactivation. With a prevalence of 33.9%, EBV showed the highest rate (BKV 3.4% and CMV 1.4%). Patients with CKD or cardio-vascular diseases showed a significantly higher prevalence of viral reactivations. Furthermore, virus+ patients had significantly higher values for pulse wave velocity (PWV) and intima media thickness (IMT), both highly correlated atherosclerosis markers. A significantly lower diastolic blood pressure in virus+ patients indicated an arterial stiffening. The calculation of a multi linear regression model for PWV and IMT, showed a high positive independent influence of patient age, hypertonia, alcohol abuse (only for PWV) and IgE blood concentrations (only for PWV). Blood serum analysis for pro-inflammatory cytokines showed significantly higher concentrations of IL-18 in virus+ patients. Strikingly, serum concentrations for the adhesion molecules ALCAM, CD44, E-selectin and VCAM-1 were also significantly higher in virus+ patients. This indication of a higher inflammation in virus+ patients was accompanied by significantly higher proportions of peripheral lymphocytes, monocytes and $CD56^{dim}$ NK cells, while neutrophils were decreased. Especially the proportions of monocytes and the serum concentrations of ALCAM, CD44, E-selectin and VCAM-1 showed high positive correlations to PWV and/or IMT values. Additionally, ALCAM and CD44 concentrations correlated positively to EBV viral loads as well.

Conclusion
These results showed very clearly an association of latent virus reactivations with pro-inflammatory markers and an increased risk for atherosclerosis indicated by elevated atherosclerotic markers.

PV01-15

Evaluating Prophylactic Strategies And Outcomes Of CMV Infection In Kidney Transplant Recipients: A Retrospective Analysis From A Eurotransplant Center

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Introduction
Cytomegalovirus (CMV) remains a significant complication in kidney transplant recipients. Prophylactic and preemptive antiviral strategies are key to managing infection risk, particularly in high-risk donor-positive/recipient-negative (D+/R–) constellations. The IMPACT trial has suggested extending Valganciclovir prophylaxis to 200 days reduces infection rates and viral loads. This study evaluates CMV prophylaxis and outcomes in a large transplant cohort to contribute to the ongoing debate on optimal prophylactic strategies.

Methods
We retrospectively analyzed 635 kidney transplant recipients treated at the University Hospital of Leipzig between 1993 and 2014. Data collected included CMV serostatus, prophylaxis duration, viral load, time of infection, and dialysis-free survival. CMV infection was defined by a positive IgM or PCR result post-transplant.

Results
Prophylaxis was administered in 37.1% of patients (77% D+/R–, 32.1% D+/R+, 19.6% D–/R+, and 18.3% D–/R–). CMV infection occurred in 20% of the cohort, with the highest rates in D+/R– patients (28%). In this high-risk group, extended prophylaxis correlated with improved CMV-free survival but was also associated with delayed infection onset and higher viral loads. ($p < 0.0001$)

Conclusion
CMV prophylaxis reduced recurrence rates in high-risk patients, though prolonged prophylaxis was associated with delayed and more intense infections. These findings support individualized prophylaxis strategies and highlight the need for further prospective studies.

Poster Session 03: Machine Perfusion and AI

PV03-01

Enhancing *Ex Vivo* Normothermic Porcine Heart Perfusion To Expand The Organ Donor Pool Using Artificial Oxygen Carriers

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Introduction
The global shortage of donor organs continues to drive advances in organ preservation techniques. An emerging technology for minimizing ischemic time in heart transplantation is *ex vivo* normothermic machine perfusion (EVNP), which typically necessitates scarce red blood cells.[1] Promising blood substitutes in this context include artificial oxygen carriers based on perfluorodecalin (AOC).[2,3]

Methods
Using a porcine model, we investigate an AOC-based perfusate as an erythrocyte alternative during EVNP.

Results
In preliminary experiments, myocardial contraction was sustained for a minimum of two hours with both AOC- and blood-based perfusion medium (n=2). Perfusate analysis at baseline (T0) and 2 hours (T2) showed lower cardiac damage markers in the AOC group (lactate T2: blood = 8.1 ± 2.4; AOC = 4.1 ± 0.2 mM; Troponin-I: blood = 956 ± 325; AOC = 302 ± 255-fold change T0-T2).

Conclusion
Although AOC-perfusion resulted in greater edema (weight gain: blood = 42.9 ± 10.9; AOC = 85.8 ± 21.7 g/h), it required fewer therapeutic interventions to maintain physiological heart rhythm during perfusion (number of cardioversions: blood = 4 ± 1.4; AOC = 2 ± 1.4). This preliminary evidence of favourable AOC performance in EVNP suggests that further replication and investigation in long-term EVNP models is warranted.

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PV03-02

Normothermic Machine Perfusion For Heart Transplantation: Outcomes In Extended Criteria Donors And High-Risk Recipients – A Single-Center Experience

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Introduction
Heart transplantation faces growing challenges due to organ shortages, extended donor criteria, and complex redo surgeries. Ex vivo normothermic machine perfusion (MP) offers a solution by reducing ischemia and enabling real-time organ assessment. This study evaluates outcomes following the Introduction of MP, demonstrating improved graft viability and the safe use of extended criteria heart donors. The primary aim was to evaluate the impact of MP on heart transplantation (HTx) outcomes in the context of extended criteria donor use and complex recipient profiles.

Methods
This retrospective single-center study analyzed HTx outcomes using a prospectively maintained database from 2018 to 2025. Among 32 donor hearts preserved with MP (OCS TransMedics), three were excluded during perfusion, and 29 were successfully transplanted.

Results
The mean cold ischemia time was 95 minutes (range: 47–147), and the mean duration of MP was 301 minutes (range: 204–406). The total out-of-body time averaged 396 minutes (range: 255–498), with a mean cardiopulmonary bypass time of 242 minutes (range: 123–346). The 30-day survival rate was 96.6%, while the mean ICU length of stay was 46 days (range: 6–180), and the six-month survival rate was 82.8%.

Conclusion
In our experience, normothermic MP was safe and free of device-related complications. MP enhanced donor heart assessment and reconditioning, enabling the use of previously unsuitable organs and expanding the donor pool. This approach may improve short-term outcomes and support transplantation in higher-risk recipients. Further clinical trials are needed to establish standardized guidelines for its use.

PV03-03

Machine Perfusion In Germany 2025: Status Quo And Future Challenges

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Introduction
Machine perfusion (MP) is increasingly replacing static cold storage and opens up new possibilities for organ assessment, organ repair and, as a result, higher transplantation rates, especially for marginal organs. [1,2] Perfusion programs are currently being established in Germany. [3] Comprehensive national data on the use, benefits, and challenges of machine perfusion in liver and kidney transplantation are still limited.

Methods
All 39 German liver and kidney transplant centers were contacted by means of a nationwide online survey. The survey covered center structure, MP funding and research, indications and organ utilization, as well as clinical use of machine perfusion in liver- and kidney transplantation.

Results

20 out of 39 (51.3%) of the centers contacted participated. 65 % have an MP program (13 liver centers and 3 kidney centers), which is mostly financed internally and without requiring a specialized perfusion team. Only 29% of the centers had a perfusion team with ≥3 employees. In liver centers, both normothermic machine perfusion (NMP) and hypothermic perfusion (HOPE) are used; for kidney transplants, only HOPE is used among the respondents. When asked about the indication for liver MP, 46% of liver centers stated that they perfuse all accepted organs, while 54% primarily perfuse marginal organs. The average increase in organ utilization since establishing a MP programme was reported as 10%. All respondents see a clear advantage for German transplant programs in MP. Only over half of all respondents (56%) are conducting research in the field of MP with a focus on ex-vivo organ repair (93%), organ enhancement (93%) and expansion of the donor pool (87%).

Conclusion

Machine Perfusion has been shown to increase organ availability and is essential given the organ shortage. However, the lack of national funding and limited research opportunities are hindering widespread establishment. Structured systematic funding is urgently required. There is disagreement in liver centers about the indication for perfusion, with proponents of general perfusion on the one hand and proponents of a special indication for ECD organs only on the other.

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PV03-04

Ex Vivo Limb Perfusion After Traumatic Amputation For Consecutive Replantation

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Introduction

Traumatic amputations increased significantly in the last 20 years. Treatment options include prosthetic and surgical care, with the latter showing significantly better functionality and patient satisfaction, but can only be carried out in selected clinics. This is complicated by short limb ischemia time, which quickly exceeds due to life-over-limb priority. The solution is ex vivo organ perfusion (EVOP), which uses continuous perfusion to create a physiological environment at body temperature, minimizing ischemia time and significantly improving post-transplant outcomes. As a suitable system and perfusion protocol for ex vivo limb perfusion (EVLP), which specifically analyzes the influence on peripheral nerve tissue for successful functional regeneration after replantation, we have developed a valid EVLP system with a reproducible protocol.

Methods

Hind limbs of six healthy domestic pigs were amputated and after 2h of warm ischemia, were either perfused 6h normothermally with PerfadexPlus ± medication using our own developed EVLP and protocol or stored statically at room temperature / 4°C. Key perfusion parameters,

blood gas analysis, serum markers (e. g. LDH), cytokine levels (e. g. IL6), thermal imaging, colloid oncotic pressure, weight gain, joint mobility, histomorphometric and stereological analyses were performed.

Results

Perfusion parameters, BGA and histology confirm a valid and reliable EVEP with associated basic protocol. Additional medication supports physiological metabolic activity, resulting in significantly lower serum markers. Anti-inflammatory effect of methylprednisolone results in less weight gain under EVEP with continued joint mobility, but significantly weakens pro-regenerative cytokine environment of Waller degeneration, which is essential for nerve regeneration for successful functionality and to avoid the neuroma formation with phantom pain.

Conclusion

We succeeded in developing a valid EVLP with an effective perfusion protocol that for the first time demonstrated the beneficial influence of EVLP on Waller degeneration for peripheral nerve regeneration and proved that administration of methylprednisolone during EVLP should be avoided in favor of WD.

PV03-05

Early Experience Of Routine End-Ischemic Hypothermic Oxygenated Machine Perfusion (Hope) In Liver Transplantation

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Introduction

Hypothermic oxygenated liver perfusion (HOPE) has proven to be a promising approach to reduce ischemia-reperfusion injury (IRI) following liver transplantation (LTx), especially due to the increasing use of extended criteria donor (ECD) organs. In our monocentric study we report the early results after routine use of end-ischemic HOPE in comparison with a historical cohort preserved by static cold storage (SCS).

Methods

Between November 2023 and March 2025 46 LTx underwent routine HOPE at our institution. Outcomes were compared to a retrospective cohort from May 2010 to September 2020 of 438 livers preserved by SCS alone.

Results

The SCS group has significantly lower labMELD Scores (20.47 (6-40) in SCS vs. 24.28 (7-40) in HOPE, $p=0.024$) and shorter cold ischemia times (513.3 (20-1062) min in SCS vs. 643.22 (304-915) min in HOPE, $p<0.001$). Therefore, the rate of ECD graft was significantly higher in the group with routine end-ischemic HOPE (67.0% in SCS vs. 84.8% in HOPE, $p=0.017$). Despite the higher risk profile in the HOPE group, there is a tendency towards fewer early allograft dysfunction (EAD) according to the definition of Olthoff et al. (29.4% after SCS vs. 26.7% after HOPE, $p>0.05$). Moreover, patients after transplantation of a previously perfused liver showed significantly decreased levels of AST ($p>0.05$) and ALT (381.8 U/l vs. 305.9 U/l, $p=0.022$) in the first postoperative days. No adverse events related to the use of HOPE were observed.

Conclusion

The early results of our institution demonstrate that the routine use of end-ischemic HOPE in LTx is feasible, safe and associated with a tendence to an improved short-term outcome in a patient cohort with a more critical condition. These results justify the broader implementation of HOPE as a standard in liver graft preservation.

PV03-06

Normothermic Machine Perfusion Of Genetically Modified Porcine Livers Using Human Blood: Establishment Of A Xenogeneic Model For The Development Of A Bridging Strategy

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Introduction

Transplant medicine faces the ongoing challenge of a chronic shortage of donor organs. Liver transplantation, in particular, is marked by long waiting lists and high mortality rates among patients on the waiting list. In the search for alternative organ sources, xenotransplantation is once again gaining increasing relevance.

Methods

Nine genetically modified porcine livers were studied after organ procurement via donation after circulatory death (DCD) and donation after brain death (DBD). The organs were divided into three experimental groups that differed in genetic modification, ischemia time, donation modality, and perfusion duration. Group 1 consisted of αGal-knockout animals subjected to 2 hours of cold ischemia and 6 hours of perfusion [1]. Group 2 involved αGal-KO animals with five humanized transgenes, a prolonged ischemia time (12–18 hours), and also 6 hours of perfusion. Group 3 included triple-KO animals carrying the same transgenes as Group 2, exposed to short ischemia times (1–2 hours), followed by 24 hours of perfusion. The perfusate in Group 1 comprised type O (Rh^-) packed red blood cells, while in Groups 2 and 3, fresh frozen plasma of blood group AB was additionally used. Functional and immunological assessments were carried out using laboratory analyses and flow cytometry, with sample collection at defined time points.

Results

Xenogeneic perfusion was successfully maintained for the intended duration in all three groups. Groups 1 and 2 demonstrated a marked increase in lactate levels and a decrease in hemoglobin concentrations over time, indicating metabolic dysregulation and possible hemolysis. This pattern was not observed in Group 3. Immunological analyses revealed a rapid rise in porcine immune cells (CD45, CD3, CD21, CD4, CD14, CD56; NK cells, monocytes, T and B lymphocytes) in the perfusate at the beginning of perfusion. These concentrations remained largely stable throughout the duration of perfusion.

Conclusion

Xenogeneic perfusion of genetically modified porcine livers is technically feasible. It may serve in the future as a basis for bridging strategies but requires further studies to evaluate its safety and potential.

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PV03-07

Ex Vivo Liver Perfusion Is Associated With A Distinct Cytokine Milieu And A Balanced Pro- And Anti-Inflammatory Microenvironment In Recipient Blood

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Introduction
The immunological changes during ex vivo liver perfusion and their impact on the recipient directly after liver transplantation (LTx) are poorly understood. At Hannover Medical School (MHH), hypothermic oxygenated organ perfusion (HOPE) using the VitaSmart™ device has been performed with both standard and extended criteria donor livers. Here, we determined in a pilot cohort of 14 consecutive liver Tx recipients with HOPE perfused livers the dynamics of soluble immune mediators (SIM), comprising key cytokines, chemokines and growth factors.

Methods
The kinetics of 50 SIM were determined in liver preservation solutions during HOPE perfusion as well as in recipient (n=14) plasma before, directly after, day 1 and 7 post LTx. SIM profiles were correlated with clinical parameters in recipient blood such as liver enzymes.

Results
The SIM kinetics showed surprisingly constantly low concentrations of the pro-inflammatory cytokines IL-1b, IL-6, IL-12p70, IL-17, IL-18, TNF-a, IFN-g and the chemokines CXCL8/IL-8, CXCL9/10, CCL2/3/4/5 indicating no induction of their expression and release during 208 minutes (mean) of HOPE. In sharp contrast, the anti-inflammatory cytokines IL-1Receptor antagonist (IL-1RA), MIF, HGF and the endothelial markers sICAM-1 and sVCAM showed a rapid release into the perfusate at 5 min with a plateau already after 1 h of ex vivo perfusion. In recipient plasma, levels of IL-1b, IL-6, IL-12p70, IL-18, TNF-a, IFN-g, G-CSF as well CXCL1, CXCL9/10/12, CCL2/3/4/5 showed significantly increased levels directly after liver Tx with a decline to baseline at POD1-2. However also high levels of the anti-inflammatory cytokines IL-10 and MIF were secreted directly after liver Tx. Of note, several cytokines and chemokines correlated with liver enzymes in perfusates as well as in recipient plasma where we found peak alanine aminotransferase at 796 U/l (mean) at postoperative day 0 (median).

Conclusion
Our findings highlight complex immunological dynamic during ex vivo liver perfusion providing first evidence for a substantial regulatory capacity of ex vivo liver perfusion. Further insights might pave the way for future optimization strategies during ex vivo organ preservation.

PV03-08

Prior Hypothermic Oxygenated Perfusion Protects Porcine Liver Grafts From Reperfusion Injury During Normothermic Machine Perfusion

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Introduction
With the increasing need to transplant marginal organs from so-called extended criteria donors (ECD), ischemia reperfusion injury (IRI) remains a major challenge in liver transplantation (LT). End-ischemic hypothermic oxygenated perfusion (HOPE) and dual hypothermic oxygenated perfusion (D-HOPE) have been shown to be promising approaches for reducing IRI. This study aimed to evaluate the protective effects of HOPE and D-HOPE on porcine liver transplants during subsequent normothermic machine perfusion (NMP), which allows functional graft assessment while mimicking physiologic conditions.

Methods
Porcine livers grafts were harvested and underwent 20 hours of static cold storage (SCS). Subsequently, grafts were randomized into three groups: control (N=5), HOPE (N=5), and D-HOPE (N=5). Hypothermic perfusion was applied for 2 hours at 4-11°C with 100% oxygenated perfusate using the *Bridge to Life Device*®. This was followed by NMP for 6 hours with the *Liver Assist Device*® at 37°C. Biochemical markers of liver injury (AST, ALT), lactate clearance, bile production, histological analysis (Suzuki and bile duct injury score) and inflammatory cytokine levels were measured.

Results
Both HOPE and D-HOPE show a partially significant reduction in AST and ALT levels (p=0.045). The intervention groups also demonstrated a significantly improved lactate clearance compared to the control group (p=0.045). Bile production does not appear to be improved by previous cold perfusion, but we were able to show that the bile of the HOPE and D-HOPE groups had lower glucose levels, although this was not significant. Histological evaluation revealed lower necrosis, inflammation, and endothelial damage. HMGB-1 release tends to be lower in both hypothermic perfused groups. Finally, we could not detect any differences between the HOPE and D-HOPE groups regarding the prevention of IRI based on the analyzed markers.

Conclusion
Both HOPE and D-HOPE effectively reduce reperfusion injury in porcine liver grafts during NMP. These results support the potential of hypothermic perfusion for routine clinical use before NMP to improve transplantation outcomes.

PV03-09

CITE-Sequencing Of Renal Perfusates After Hypothermic Machine Perfusion - A Gateway Towards A Deeper Understanding Of Marginal Donor Organs?

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Introduction
Hypothermic machine perfusion (HMP) enables organ perfusion representing a unique platform for the multiparametric assessment of organs prior to transplantation. As the increasing use of marginal kidneys requires improved tools to assess organ quality prior to transplantation, we tested whether the cellular and molecular landscape of renal perfusates obtained after HMP mirrors the potential allograft to predict short term outcome.

Methods
To this end, we generated a CITE-Seq dataset of cells from perfusates of 12 donor kidneys, half of which showed restricted graft function early post transplantation reflected by the development of delayed graft function (DGF) versus perfusates derived from transplants showing no signs of DGF (n=6).

Results
To this end, we generated a CITE-Seq dataset of cells from perfusates of 12 donor kidneys, half of which showed restricted graft function early post transplantation reflected by the development of delayed graft function (DGF) versus perfusates derived from transplants showing no signs of DGF (n=6). The generated data allowed us to profile the expression of over 140 surface proteins, as well as 16640 genes derived from 60.517 cells. Most cells were derived from the immune compartment, with all major cell types represented. A minority of cells could be traced to a renal origin. Cell populations were stable across samples, with smaller population shifts observable in relation to transplant performance. At the molecular level, we present analyses of cell-cell interactions, differential gene expression, and gene signatures in relation to transplant function and demographic factors. Compositional analysis indicated differences of the immune cell composition between non-DGF versus DGF kidneys.

Conclusion
These findings demonstrate the potential of multi-modal single-cell profiling of kidney perfusates to reveal immunological and cellular patterns associated with graft quality. Our approach may contribute to a more precise non-invasive pre-transplant assessment of marginal donor organs.

PV03-12

Using Artificial Intelligence And Computational Simulations To Support Tumor Liver Assessment And Listing Decisions In The Interdisciplinary Tumor And Transplantation Conference

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Introduction
With ~500,000 new cancer cases annually, oncology remains a major challenge for the healthcare system in Germany. Liver tumors are now the fifth most common cancer worldwide and the second leading cause of cancer-related death. In hepatocellular carcinoma (HCC), liver transplantation offers the only curative option addressing both tumor and underlying disease. However, due to persistent organ shortage, not all eligible patients can be listed. Selection decisions often rely on static criteria such as the Milan criteria, which insufficiently capture individual tumor biology, dynamics, and long-term prognosis.

Methods

To support objective, transparent, and individualized transplant decisions, we are developing ATLAS (AI and Simulation for Tumour Liver Assessment). ATLAS integrates machine learning with patient-specific computational liver models and links them to a dynamic, time-resolved knowledge graph representing structured clinical data. A large language model (LLM) enhances accessibility by enabling intuitive data interaction and context-aware reasoning—even for users without technical background.

Results

A functional demonstrator has been tested in simulated transplant board and interdisciplinary conference scenarios. It enables visualization of disease trajectories and prediction of patient outcomes under various scenarios, including transplant vs. non-transplant strategies. This allows refined risk stratification and prioritization beyond conventional listing rules.

Conclusion

ATLAS supports evidence-based and personalized transplant board decisions and contributes to structured post-transplant follow-up by recommending individualized diagnostic intervals. As a clinical decision support system (CDSS), it aims to optimize outcomes and fairness in liver transplantation, especially under conditions of limited organ availability.

PV03-13

NFDI4Immuno: Structured Federated Data Management For Immunology And Transplantation Medicine

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Introduction

Transplantation medicine and immunology generate heterogeneous data spanning clinical, immunological, and genomic domains. As part of the German National Research Data Infrastructure (NFDI), the NFDI4Immuno consortium develops technical solutions to enable structured, FAIR-compliant research data management (RDM) across institutional boundaries, bringing together 15 partners throughout Germany.

Methods

We present a comprehensive infrastructure consisting of federated institutional repositories, a standardized metadata model, a programmatic API, and a prototype web portal. The metadata model aligns with HealthDCAT-AP and DCAT-AP standards, supporting emerging European Health Data Space (EHDS) requirements and enabling semantic interoperability. The API provides machine-readable access to metadata and datasets, while the portal allows users to discover, annotate, and access data with integrated provenance tracking and access control.

Results

The technical architecture initially focuses on Adaptive Immune Receptor Repertoire Sequencing (AIRR-seq) and cytometry data, with plans to expand to other immunological data classes relevant to transplantation. This infrastructure enables researchers to deposit, discover, and access high-quality immunological data while maintaining appropriate governance. NFDI4Immuno works closely with complementary NFDI initiatives, including GHGA (German Human Genome-Phenome Archive), NFDI4Health, and NFDI4BioImage under the NFDI Biomed interest group umbrella. These collaborations support cross-domain data exchange involving genomic, clinical, and imaging datasets critical for transplantation research. The resulting infrastructure will enable researchers to analyze immune responses crucial for transplant management, potentially improving outcomes through data-driven approaches.

Conclusion
We invite transplantation researchers and clinicians to engage with NFDI4Immuno through use cases that help shape the infrastructure to meet specific needs. We will present current technical components, implementation status, and collaboration perspectives to advance transplantation medicine through enhanced understanding of immune responses in recipients and donors.

PV03-15

Deep Learning-Based MRI Volumetry For Living Kidney Donor Assessment: A New Tool For Predicting Post-Donation Renal Function

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Introduction
Living kidney donation helps to address the global organ shortage for patients with end-stage kidney disease. Donor safety requires thorough preoperative evaluation of kidney anatomy and function. This study examines the relationship between kidney volumes from deep learning-based MRI, intraoperative measurements, split renal function via scintigraphy, and post-donation eGFR, hypothesizing that MRI volumetry is a reliable method.

Methods
In this retrospective study of 178 living donors, kidney volumes from deep learning MRI volumetry were compared with intraoperative measurements using the water displacement method. MRI-derived volume ratios were also compared with scintigraphy-based split function ratios to assess prediction of the less functional kidney and post-donation eGFR.

Results
MRI volumetry showed a strong correlation with intraoperative kidney volumes ($r=0.7671$; $p<0.0001$). Volume ratios had a moderate correlation with split function ratios ($r=0.4798$). MRI volumetry correlated better with one-year post-donation eGFR than scintigraphy ($r=0.6829$ vs. $r=0.6191$).

Conclusion
Deep learning-based MRI volumetry is a reliable, non-invasive, radiation-free method for assessing kidney volume in living donors. Though differing from scintigraphy in split function evaluation, its stronger correlation with post-donation eGFR supports its clinical utility in donor assessment.

Poster Session 02: Kidney

PV02-01

Daratumumab In Recurrent FSGS After Kidney Transplantation: A Promising Addition Or Limited Benefit?

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Introduction
FSGS recurrence after kidney transplantation remains a major challenge frequently leading to graft loss despite cur-

rent therapies. Standard treatments like plasmapheresis and Rituximab show inconsistent efficacy driving the need for novel approaches. Daratumumab, a CD38 monoclonal antibody, has demonstrated potential in limited clinical reports. 5 kidney transplant recipients with biopsy-confirmed FSGS recurrence were analyzed retrospectively. 4 had prior native kidney biopsies supporting the diagnosis, and 2 underwent genetic testing excluding monogenic FSGS. Patient 1 experienced recurrence four weeks post-transplant, initially responding to plasmapheresis and rituximab before relapsing. Four daratumumab doses induced sustained remission without further plasmapheresis. Patient 2 had early recurrence, achieving partial remission with plasmapheresis/Rituximab and complete remission after three daratumumab doses, enabling plasmapherese discontinuation. Patient 3 presented immediate posttransplant recurrence, resisting plasmapheresis, rituximab, and obinutuzumab. Partial remission followed five Daratumumab doses, stabilized by monthly plasmapheresis. Patient 4 recurred after a second transplant, attaining only partial remission despite plasmapheresis, Rituximab and 6 Daratumumab doses. Patient 5 delayed treatment for 4 years post-recurrence due to severe nephrotic syndrome progressing to dialysis-dependent graft failure. 6 Daratumumab doses achieved complete remission, though monthly plasmapheresis persists.

Methods

Retrospective analysis of five kidney transplant recipients with FSGS recurrence. Standard therapy was supplemented with subcutaneous Daratumumab. Primary outcome was the achievement of partial or complete remission.

Results

Three patients (1, 2, 5) achieved complete remission after 3–6 Daratumumab doses with plasmapheresis discontinued in two. Two patients (3, 4) reached partial remission but require ongoing plasmapheresis.

Conclusion

Daratumumab shows therapeutic potential in posttransplant FSGS recurrence especially after rituximab failure. Responses were variable, not uniformly complete. Larger studies are needed to define its role and identify responsive patient subgroups.

PV02-02

Daratumumab (Anti-CD38) For The Treatment Of Microvascular Inflammation Following Kidney Transplantation. A Multicenter Registry Study

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Introduction

Microvascular inflammation (MVI) on kidney biopsy both in the presence and absence of detectable donor-specific anti-HLA antibodies (DSA) is a hallmark of antibody-mediated rejection (AMR) following kidney transplantation. Anti-CD38-containing regimens, including daratumumab and felzartamab, have recently emerged as a promising therapeutic strategy to coun-

teract MVI, stabilize graft function and potentially also prolong graft survival. However, many questions remain such as the optimal dose, treatment duration as well as the long-term effect on allograft function and its efficacy in both DSA-positive and DSA-negative MVI. To answer these questions, we initiated the multicenter "daratumumab registry".

Methods

Clinical data on eGFR, albuminuria, kidney allograft pathology, DSA and donor-derived cell-free DNA (dd-cfDNA) levels both prior to and after initiation of daratumumab treatment are retrospectively collected from the participating transplant centers. Follow-up data and data on new patients will be added in regular intervals.

Results

As of May 1st, 2025, data on 28 patients from four German transplant centers (Berlin, Hannover, Leipzig, Regensburg) have been added to the database. 24 patients had antibody-mediated rejection (AMR) with (n=14) or without (n=10) C4d-deposition, and four patients had DSA-negative MVI without C4d-deposition on kidney biopsy. Median time between transplantation and diagnosis of AMR / MVI was 2.8 years (IQR 0.9-8.2). Daratumumab treatment was initiated at a median of 1.5 months (IQR 0.7-4.4) following diagnosis of AMR / MVI. Median eGFR slope in the 12 months prior to the diagnosis of AMR was -18 ml/min (IQR -30 to -11; n=19), whereas there was an increase of +7 ml/min after six months of daratumumab treatment (IQR +1 to +9; n=14). Median albuminuria after six months was reduced by 68% (n=14). Median dd-cfDNA levels also decreased early during treatment: 1.59 % (IQR 0.72 -3.83) of total cfDNA at the first daratumumab dose vs. 0.37 % (IQR 0.12 - 1.06) early after starting daratumumab.

Conclusion

Our preliminary data suggest efficacy of daratumumab in stabilizing kidney function following the diagnosis of AMR / MVI.

PV02-03

Combining PIRCHE-II-scores And dd-cfDNA For Rejection Monitoring After Kidney Transplantation

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Introduction

The PIRCHE-II algorithm estimates donor HLA-specific indirect T cell epitopes, indicating the number of potential CD4+ T cell targets [1]. It calculates the T-cell epitope load based on donor HLA peptides absent in the recipient's HLA-A, -B, -C, -DRB1, and -DQB1 alleles. Higher PIRCHE-II scores are linked to dnDSA development, rejection, and inferior graft survival [2]. Donor-derived cell-free DNA (dd-cfDNA) is mainly studied for rejection but its release is not limited to alloimmune-mediated injury [3-5]. We hypothesized that combining PIRCHE-II and dd-cfDNA could improve rejection prediction, which has not investigated yet.

Methods

We included all kidney transplant recipients (KTR) with a dd-cfDNA-matched for-cause biopsy in our center from 2020 to 2024. Along with PIRCHE-II, dd-cfDNA and histological data, we retrospectively evaluated dnDSA evolution and previous rejection history until the time of index biopsy. PIRCHE-II scores were calculated

using multiple HLA genotype imputation. Annual screening for dnDSA was performed using Luminex-SAB assay(MFI>1000). Both absolute and relative dd-cfDNA were measured using digital-droplet PCR.

Results

Total PIRCHE-II scores were significantly higher in KTR with dnDSA compared to those without dnDSA (n=61, median 51.8 vs. n=57, median 44.1,p<0.05). KTR with a rejection in the first year after transplantation showed the highest total PIRCHE-scores, compared to the remaining KTR in this cohort (n=23, median 57.9 vs. n=95, median 49.0, p<0.05). Dd-cfDNA showed AUC-ROC of 0.83 (95% CI: 0.75-0.90) for the diagnosis of rejection, while PIRCHE-II showed AUC-ROC of 0.61 (95% CI: 0.497-0.71) for the prediction of rejection. Combining dd-cfDNA and PIRCHE in a logistic regression model did not improve diagnostic test metrics compared to dd-cfDNA alone (AUC 0.83 [0.76-0.91] vs. 0.83 [0.75-0.90], p=0.59).

Conclusion

While PIRCHE-II is a one-time test available at time of transplantation associated with alloimmune events such as dnDSA formation and early rejection, combining PIRCHE-II and dd-cfDNA did not improve diagnostic test metrics. We conclude that dd-cfDNA is the most eligible tool for noninvasive discrimination of rejection, since it enables dynamic injury assessment.

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PV02-04

Pegcetacoplan For Posttransplant Patients With Complement 3 Glomerulopathy Or Primary (Idiopathic) Immune-Complex Membranoproliferative Glomerulonephritis

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Introduction
Complement 3 glomerulopathy (C3G) and primary (idiopathic) immune-complex membranoproliferative glomerulonephritis (IC-MPGN) are rare, chronic kidney diseases that often recur after transplantation despite conventional immunosuppression. NOBLE (Phase 2, NCT04572854) and VALIANT (Phase 3, NCT05067127) showed efficacy and favorable tolerability of pegcetacoplan (C3/C3b inhibitor) for adults and adolescents with native or post-transplant recurrent C3G or primary (idiopathic) IC-MPGN. Here, we describe pegcetacoplan for kidney transplant recipients in these studies.

Methods
Eleven posttransplant patients with ≥1 g/g proteinuria at baseline received pegcetacoplan (NOBLE, n=6; VALIANT, n=5). Study designs and biopsy schedules differed between studies, but all patients received pegcetacoplan subcutaneously twice weekly for at least 24–26 weeks. Efficacy endpoints included change from baseline in proteinuria, estimated glomerular filtration rate (eGFR), and C3c staining on kidney biopsy. Treatment-emergent adverse events were also reported.

Results
The safety profile of pegcetacoplan was favorable for post-transplant patients, with no graft loss or rejection reported during 6 months of treatment. Pegcetacoplan-treated patients demonstrated decreased proteinuria and stable eGFR in both studies. C3c staining reduction was observed at Weeks 12 and 52 in NOBLE, and at Week 26 in VALIANT, suggesting that pegcetacoplan leads to early and sustained histopathological improvements.

Conclusion
Six months of pegcetacoplan treatment was safe and well tolerated in post-transplant patients with C3G and primary IC-MPGN. Patients achieved decreased proteinuria, stable eGFR, and decreased C3 staining.

PV02-05

Is Rituximab Useful Or Harmful In Blood Group Incompatible (ABOi) Renal Transplantation?

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This study was supported by Astellas and Novartis Pharma; off-label use: rituximab;

Introduction
Rituximab has been proven to suppress anti-ABO titer rebound in ABOi renal transplantation. However, an increased risk of severe infectious disease and of acute antibody-mediated rejection (AMR) has been described after ABOi renal transplantation [1-4]. We performed a prospective renal transplant study up to 5 years post-transplant to detect long-term immunological effects of rituximab administration.

Methods
Mononuclear cell subsets in peripheral blood, regional lymph nodes and protocol biopsies, and in-vitro T and B cell responses were assessed in 85 renal transplant recipients (living donation: n=25 ABOi, n=30 ABO compatible (ABOc); deceased donation (DD): n=30).

Results
The frequency of severe infectious diseases was doubled in ABOi versus ABOc recipients (P=0.042 within 2

years). In ABOi recipients, peripheral blood B cell subsets were profoundly downregulated for at least 3 years, together with impaired in-vitro B cell responses for 2 years (P=0.010, T-dependent; P=0.053, T-independent). CD4+ T cell counts were diminished up to 6 months (P=0.046). In regional lymph nodes, we found a significant downregulation of naive B cells (P=0.031) and short lived plasma cells (P<0.0005) at the time of ABOi transplantation.

ABOi patients showed an increased frequency of biopsy-proven acute rejection (3-12 months posttransplant, P=0.003) and of AMR (P=0.008 within 5 years). In protocol graft biopsies, we found rituximab-induced B cell depletion at 3 months (P<0.001), but even enhanced counts of T cells (P=0.041), macrophages (P=0.021) and plasma cells (P=0.033) at 1 year. IgG anti-HLA antibody formation was not significantly different between ABOi and ABOc patients.

Conclusion

An increased frequency of severe infectious diseases in rituximab treated ABOi renal transplant recipients may be explained by the rituximab-induced long-term immunological effects on CD4+ T cell counts and the prolonged depletion of B cell subsets together with compromised B cell responses. In protocol graft biopsies, rituximab induced early B cell depletion but counter-regulatory proinflammatory effects, coinciding with an increased acute rejection frequency. Rituximab did not suppress IgG anti-HLA antibody formation.

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PV02-06

Immune Monitoring By Torque Teno Virus (TTV) Load In Addition To Virus-Specific T Cells (Tvis) After Pediatric Kidney Transplantation

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Introduction

Pharmacokinetic monitoring is insufficient to estimate the intensity of immunosuppression after kidney transplantation (Tx). Adenovirus-specific T cells (ADV-Tvis) and torque teno virus (TTV) are new promising biomarkers to identify the risk of rejection and infection. We have evaluated the additional analysis of TTV in the Tvis-guided intervention group of the randomized controlled IVIST trial.

Methods

In the IVIST trial, 31 pediatric kidney recipients were randomized to the intervention arm with additional steering by Tvis levels. In 27/31 Tvis-guided patients (11.7±3.3 yrs), a retrospective analysis of TTV DNA was performed by PCR in frozen plasma samples (1-24 mo post-Tx). Post-Tx changes of TTV DNA and ADV-Tvis over time were evaluated by paired t-test, correlations with immunosuppressants by Spearman correlation.

Results

The mean TTV DNA of all blood samples (n=474) was 4.4 ± 1.3 log10 copies/mL (1.4 log10 to 9.4 log10). TTV showed a significant association with follow-up time

after Tx (p<0.0001): Under intensified immunosuppression in the early post-Tx period, TTV increased with a peak at 3 mo post-Tx (5.5±1.4 log10); after reduction of immunosuppression, TTV decreased significantly over time (6 mo post-Tx: 4.3±1.1 log10, p=0.0002; 18 mo post-Tx: 3.9±1.2 log10, p<0.0001). In contrast, mean ADV-Tvis levels showed a minimum at 2 mo after Tx and increased over time: from 1.47 cells/µL (2 mo post-Tx) to 1.98 (6 mo post-Tx, p=0.056) and 2.36 (22 mo post-Tx, p=0.008). TTV showed weak mean correlations with trough levels and doses of cyclosporine A, everolimus and prednisolone (from mo 3 to 24 post-Tx: r=0.21-0.31, p≤0.0003).

Conclusion

In this first combined analysis, TTV presented an opposite course compared to ADV-Tvis after Tx. Both biomarkers were associated with the post-Tx follow-up time but with high inter-individual variations and weak correlations to doses and levels of immunosuppressants. Compared to the early nadir of ADV-Tvis, TTV showed a delayed peak at 3 mo post-Tx, suggesting a delayed response to drug dose changes. Therefore, a combined post-Tx monitoring of Tvis and TTV may have an additional value to detect over- and under-immunosuppression but further studies are needed.

PV02-07

Aging And Infection After Kidney Transplantation: Uncovering Shifts In Pathogens And Resistance Patterns

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Introduction

Infections are common after kidney transplantation. The impact of age on pathogen distribution and resistance patterns is not well understood, yet it may hold key insights for improving infection management.

Methods

We analyzed a cohort of 572 adult kidney transplant recipients from the DZIF Transplant Cohort, transplanted at University Hospital Heidelberg (2012-2023). Clinical events were systematically recorded until 12/2024. Recipients were stratified into three age groups: <40 years (n=146), 40–60 years (n=279), and >60 years (n=147).

Results

Urinary tract infections (UTIs) were the leading infection in all age groups, accounting for 34-35%. E.coli was the most common uropathogen, representing 42% of infections in patients <40 years, 38% in those aged 40–60 years, and 35% in patients >60 years. Enterococcus spp. followed with 30%, 33%, and 30%. Klebsiella spp. showed a decreasing trend (21%, 18%, 12%), while Pseudomonas aeruginosa (6%, 7%, 18%) and Enterobacter spp. (2%, 4%, 5%) but especially Pseudomonas aeruginosa (6%, 7%, 18%) increased with age. The proportion of UTIs caused by resistant pathogens rose with age. In patients <40 years, 6.7% of UTIs were due to vancomycin-resistant enterococci (VRE) or multidrug-resistant Gram-negative bacteria (3MRGN/4MRGN). This increased to 14.7% in the 40–60 year group and to 17.6% in patients >60 years. VRE prevalence rose from 2.5% to 9.1%, while 4MRGN pathogens doubled from 0.8% in younger patients to 4.0% in the oldest group. Pneumonia increased with age, from 6.9% (<40 years) to 7.6% (40–60 years) and 11.8% (>60 years). A similar trend was observed for bacteremia (0.9%, 0.6%, 2.2%). In contrast, upper respiratory tract infections showed a decreasing trend (10.3%, 8.8%, 3.2%). Gastrointestinal infections, pyelonehritis and infections of unknown origin showed no relevant variation across age groups. Similarly, the proportion of (uro) sepsis remained stable at around 8-9% in all age groups.

Conclusion

Rising rates of pneumonia, bacteremia, and antibiotic-resistant pathogens with age highlight the need to look beyond chronological age. Addressing both age-related and modifiable factors is crucial for improving infection management and outcomes.

PV02-08

Reevaluating The Impact Of Recipient Age On Kidney Transplant Outcomes: A Comprehensive Analysis Of Graft Loss, Mortality, And Infections

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Introduction

The prognostic relevance of recipient age in kidney transplantation outcomes remains debated, particularly in the context of evolving donor profiles and post-transplant risk factors.

Methods

A prospective cohort of 572 adult kidney transplant recipients enrolled in the DZIF Transplant Cohort at the University Hospital Heidelberg between 2012 and 2023 was analyzed. Clinical events were systematically recorded until December 2024. To clarify the contributing factor "recipient age", a robust statistical approach was performed that combined propensity score matching (PSM), inverse probability weighting (IPW) and multivariate Cox regression analysis.

Results

While incidence rates and univariate analyses initially suggested recipient age as a key risk factor for graft loss, mortality, and various infections, more refined statistical analyses revealed a more nuanced relationship. Recipient age >60 years remained independently associated with an increased risk of mortality (HR=2.4, p=0.05), along with a higher BMI (HR=1.09, p=0.009), higher donor age (HR=1.06 per year, p<0.001), and the number of infections within the first year (HR=1.16, p=0.005). Recipient age also remained significantly associated with a higher risk of opportunistic infections (HR=1.85, p=0.03), bacterial infections (HR=1.45, p=0.04), and fungal infections (HR=2.10, p=0.02). However, it was no longer associated with graft loss (HR=1.10, p=0.55), urinary tract infections (HR=1.02, p=0.75), or pneumonia (HR=1.10, p=0.58). Instead, other factors such as donor age (HR=1.06 per year, p<0.001), high immunological risk (HR=2.8, p=0.05), male donor gender (HR=2.5, p=0.004). Particularly, the number of infections within the first year showed a strong and independent cumulative effect, with each additional infection increasing the risk of graft loss by 20% (HR = 1.2, p < 0.001), while episodes of acute rejections showed no significant effect (p=0.34).

Conclusion

Age alone is not a reliable predictor of transplant outcomes. Its impact is overshadowed by modifiable factors like early infections and comorbidities. Addressing these factors offers a critical opportunity for improving patient outcomes.

PV02-09

Kidney Parenchymal Cells Possess Immunomodulatory Functions And Are Novel Targets For Specific Immunosuppression

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Introduction
Acute cellular rejection of kidney transplants is mainly attributed to direct, semi-direct, and indirect allorecognition via MHC-I and -II on donor or recipient APCs. However, the role of kidney parenchymal cells, particularly tubular epithelial cells (TECs), is often underestimated. We aimed to explore immunological functions of TECs beyond being cytotoxic T cell targets.

Methods
TECs were cultivated from urine samples of kidney transplant patients and living kidney donors. Transplant-origin was tested by chimerism analysis of blood and urine-derived cells of living transplant donors and the respective recipients. To mimic an inflammatory environment, cells were treated with cytokines IFNγ, TNFα, and IL-1β. We performed proteomic analysis of TECs and their secretome in 24 probands and confirmed the expression of relevant proteins by flow cytometric characterization of over 20 markers. Co-cultures of kidney transplant cells and recipient PBMCs of 54 patients were used to study alloreactivity and influence of TEC immunomodulatory molecule expression on alloreactive T cell responses by using blocking monoclonal antibodies.

Results
Chimerism analysis revealed a near total transplant origin of the urine-cultivated cells. Surprisingly, proteomic analysis showed expression of proteins and pathways involved in antigen presentation on MHC-II and regulation of adaptive immune responses. Confirmed by flow-cytometry, we observed expression of immunomodulatory proteins CD40, ICOS-L, CD70, PD-L1, and adhesion-molecules such as ICAM-1 and CD58, but not CD80/CD86. In co-culture experiments, blocking costimulatory molecules CD40 and ICOS-L as well as CD58 and ICAM-1 on TECs suppressed alloreactive CD4+ and CD8+ T cell immunity.

Conclusion
Taken together, human TECs possess immunomodulatory potential. They express not only MHC-I, but also MHC-II and a multitude of important immunomodulating molecules under inflammatory conditions, present during ischemia-reperfusion injury and rejection. Thus, they significantly contribute to the activation and modulation of alloreactive CD4+ and CD8+ T cells in vitro, and potentially can be targeted for effective immunosuppression.

PV02-11

Mitochondrial Dynamics And Ultrastructure In Cold-Stored LLC-PK1 Cells In Dependence Of The Chloride Concentration Of The Cold Storage Solution

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Introduction

We previously observed that mitochondrial fragmentation in porcine aortic endothelial cells is reversible after cold incubation in chloride-rich solutions [1], whereas cold incubation in chloride-poor solutions led to irreversible mitochondrial fragmentation, marked swelling and loss of cristae. The aim of the present study was to analyse whether renal epithelial cells exhibit similar alterations in mitochondrial dynamics and ultrastructure and whether these changes are dependent on the extracellular chloride concentration.

Methods

LLC-PK1 cells (renal epithelial cells) were incubated at 4°C for 3–48 h in Krebs-Henseleit buffer (KH; chloride-rich, 128 mM Cl^-) or in a low-chloride version thereof (KHLac, 5 mM Cl^-), both containing 5 mM glucose and 1 mM deferoxamine. Rewarming was performed at 37°C in cell culture medium.

Results

Fluorescence microscopy revealed mitochondrial fission after 3 h cold incubation progressing to marked fragmentation after 24 h. After cold incubation in KH mitochondria showed re-fusion and network formation after 1 h rewarming. In KHLac, in contrast, mitochondria showed only mild re-fusion and failed to re-form networks. Electron microscopy revealed swelling of the cristae in KH after 24 h of cold incubation, with complete recovery of the ultrastructure after rewarming. In KHLac, the matrix showed severe swelling. After 1 h rewarming, few vital cells still exhibited swelling of cristae, whereas an increased number of cells showed pronounced morphological impairment. ATP measurement showed a lower ATP content in KHLac after 3 h of cold incubation (control 11.8 $\pm$ 1.3 nmol/10^6 cells, KH 9.9 $\pm$ 3.0 nmol/10^6 cells, KHLac 5.5 $\pm$ 1.0 nmol/10^6 cells). After 1 h of rewarming, ATP levels were similar (KH 11.4 $\pm$ 0.5 nmol/10^6 cells, KHLac 11.0 $\pm$ 0.9 nmol/10^6 cells). Similar results with generally lower levels were seen after longer cold incubation.

Conclusion

Mitochondria of renal epithelial cells exhibit increased ultrastructural changes after low-chloride cold incubation, with a decrease in re-fusion and impaired formation of the mitochondrial network. After chloride-rich cold incubation, in contrast, the morphological alterations were completely reversible.

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PV02-12

Acute Kidney Injury In Deceased Organ Donors: Frequency And Impact On Kidney Donation In Germany

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Introduction

Acute kidney injury (AKI) is a serious complication in patients requiring intensive care therapy. In organ donors AKI may result in not using the kidney graft (Ki) for kidney transplantation (KTx). We studied the relationship between donor AKI and use of Ki for KTx according to the different stages of AKI as defined by KDIGO.

Methods

For all organ donors reported to Eurotransplant (ET) for allocation of at least one organ (14.04.2020-03.09.2024: n=4402) AKI stage is calculated according to serum creatinine slope and diuresis slope (if available) and compared to KI offered for allocation and KTX realized as well as donor characteristics.

Results

No AKI existed in 2559 donors (58%) with 4599 Ki offered via ET (90%) and 3922 KTX realized (77%), AKI stage 1 exited in 1007 donors (23%) with 1763 Ki offered via ET (88%) and 1464 KTX realized (73%), AKI stage 2 exited in 426 donors (10%) with 731 Ki offered via ET (86%) and 596 KTX realized (70%) and AKI stage 3 exited in 410 donors (9%) with 561 Ki offered via ET (68%) and 294

KTX realized (36%). Conversion rate from Ki offered to Ki transplanted was 85%, 83%, 82% and 52% for respectively. Of note, 17% of AKI stage 3 donors required ECMO, 52% had CPR events (median 35 Min. IQR 20-60 Min.), 7% recovered from sepsis, 24% were terminal anuric, 56% had a nadir serum creatinine > 1.5 mg/dl, 36% required acute renal replacement therapy.

Conclusion

AKI is a frequent complication in organ donors. Our data show that increasing AKI stage of the donor correlates with not offering, not accepting and not transplanting Ki's despite acceptable long-term outcome of KTx as described in various previous studies. Targeted donor management and use of machine perfusion are options to increase the use of Kis even with more advanced stages of AKI. The Introduction of kidney machine perfusion in Germany planned for 2026 therefore holds out the hope that the number of kidney transplants will increase.

PV02-14

Impact Of Tacrolimus Formulation On Glucose Metabolism And Lipid Profile After Kidney Transplantation - An Intraindividual Crossover Comparison Of Tacrolimus b.i.d And LCP-Tacrolimus (TAGLUMET Trial)

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Introduction

Extended-release life cycle pharma (LCP)-tacrolimus offers improved bioavailability and pharmacokinetics over immediate-release tacrolimus twice daily (b.i.d.) and has been shown to reduce neuronal and renal toxicity after kidney transplantation. Since experimental data have linked tacrolimus β-cell toxicity to peak plasma concentrations, it has been hypothesized that LCP-tacrolimus may also improve glucose- and lipid metabolism. The prospective, randomized, interventional TAGLUMET trial adresses this issue in stable renal allograft recipients on maintenance immunosuppression.

Methods

In an intrainidividual crossover comparison, 44 renal allograft recipients without diabetes were randomly assigned to 16 week treatment phases of tacrolimus b.i.d and LCP-tacrolimus, respectively. At the end of each treatment phase, comprehensive metabolic phenotyping with assessment of insulin secretion and -sensitivity as well as lipid metabolism was performed. Primary endpoint was insulin secretion, as determined by AUC insulin (0-30)/AUC glucose (0-30) in oral glucose tolerance test. A linear mixed effects model was used for statistical analysis.

Results

41 patients completed the trial as per protocol. No significant difference in insulin secretion was observed between tacrolimus b.i.d and LCP-tacrolimus (β = -3.24 $\pm$ 2.27,p = 0.161). Of insulin sensitivity indices, only Matsuda-ISI showed slightly higher insulin sensitivity after treatment with tacrolimus b.i.d. (β = 1.17 $\pm$ 0.57, p = 0.048). Fasting plasma glucose and HbA1c did not differ, nor did point prevalences of normal glucose tolerance, prediabetes and PTDM. Total and LDL-cholesterol levels were higher under LCP-tacrolimus, while HDL-cholesterol and triglycerides showed no difference. Tacrolimus trough levels and allograft function did not differ between treatment phases.

Conclusion

No clinically meaningful difference in glucose metabolism or lipid profile was observed when comparing tacrolimus b.i.d. and LCP-tacrolimus in stable renal allograft

recipients. The selection of tacrolimus formulation should hence not be guided by considerations aimed at improving glucose- or lipid metabolism or preventing post-transplantation diabetes mellitus.

PV02-15

Health Status 9 Years After Living Kidney Donation – Results Of The Heikid(Heidelberg Kidney Donor) Study

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We thank all participants of the Heidelberg Kidney Donor Study.

Introduction
Living kidney donation is a common procedure, but its long-term effects on kidney function and health have been repeatedly questioned. This study examines the long-term effects on kidney function and overall health of living kidney donors.

Methods
HeiKiDS (Heidelberg Kidney Donor Study) is a cohort study investigating the long-term outcome of living kidney donors (LKDs) at the Heidelberg Transplantation Center. Here, we report on the results of LKDs who donated between 1987 and 2016, with a follow-up period of at least nine years.

Results
A total of 402 living kidney donors (LKDs) were prospectively examined, with 42.6% male, a mean age of 50.0 ± 10.7 years (range 22–74 years), and 17.3% having a BMI > 30 kg/m^2. The median follow-up duration was 13 years (IQR 11–17). Prior to donation, mean serum creatinine was 0.79 ± 0.16 mg/dL, and the CKD-EPI eGFR was 96.5 ± 14.7 ml/min/1.73 m^2. 14.1% of donors had an eGFR < 80 ml/min/1.73 m^2. Renal function declined significantly in the first year, with a 36.4% drop in eGFR, followed by a stable long-term course with a mean eGFR of 67.0 ± 15.4 ml/min/1.73 m^2 (–29.0%). No significant differences in long-term eGFR decline were observed between age groups (<40, 40–60, >60 years), with declines of –23.5, –26.8, and –27 ml/min/1.73 m^2, respectively (p = 0.460). At the last follow-up, 0.7% of donors had an eGFR < 30 ml/min/1.73 m^2. No significant changes in BMI or blood pressure were observed over the long-term follow-up. However, the prevalence of arterial hypertension increased from 45.8% at baseline (mean age 55 ± 4 years) to 60.7% at the last follow-up (mean age 67 ± 10 years). Multivariate logistic regression revealed that neither donor age at donation, baseline eGFR, nor years since donation were significantly associated with a >30% decline in eGFR during long-term follow-up.

Conclusion
Living kidney donors maintain stable kidney function over the long term. The observed increase in hypertension appears to follow expected age-related patterns. Continuous follow-up is crucial for the donor's health.

Poster Session 04: Liver

PV04-02

Validation Of Meld 3.0 And Remeld-NA Scoring System In Heidelberg: A Retrospective Clinical Cohort Study

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Integrative Muscle-Adipose Score (IMAS) Predicts Sex-Specific Long-Term Survival After Orthotropic Liver Transplantation

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Introduction
The Model for End-Stage Liver Disease (MELD) score has seen formula adjustments since its Introduction in 2002. The latest version, MELD 3.0, introduced in 2023 in the United States, further refines mortality prediction by integrating sex and albumin levels. Until recently,Germany continued to rely on the original MELD, and upgraded to a sodium MELD formula (reMELD-Na) in March 2025. This formula does not include sex and albumin. This study compares the performance of original MELD, MELD-Na, reMELDNa, and MELD 3.0 for patients waitlisted for liver transplantation.

Methods
This is a retrospective single-center cohort study including 206 patients listed for LT between 2017 and 2021, excluding high-urgency listings, re-transplantations, and HCC. MELD scores were calculated for these patients and compared. Predictive accuracy for three-month survival and overall survival was assessed using Harrell's c-index and integrated area under the curve (iAUC).

Results
Over a median follow-up of 33.9 months. Thirty-eight patients (18.4%) were transplanted within three months of listing. Sixteen patients died within the first three months after listing, primarily due to liver failure and sepsis. MELD 3.0 without albumin and reMELD-Na demonstrated the highest discrimination for three-month survival (iAUC 0.848 and 0.847; c-index 0.827 and 0.848, respectively). For OS, MELD 3.0 without albumin maintained the strongest performance across the full cohort (iAUC and c-index 0.827). In females, reMELD-Na outperformed other models (iAUC 0.707; c-index 0.705). However, MELD 3.0 led to an upward shift in patient prioritization, where females in the higher MELD ranges tended to receive even higher scores with MELD 3.0. Original MELD consistently exhibited the lowest discriminative ability across the full cohort.

Conclusion
This study is the first to validate the utility of reMELD-Na and MELD 3.0 in a German transplant cohort. MELD 3.0 and reMELD-Na exhibited superior predictive accuracy compared to the original MELD and MELD-Na. Reclassification patterns further revealed that MELD 3.0 may better reflect disease severity, especially in women at advanced stages.

Introduction
Body composition reflects nutritional status and metabolic reserves and predicts the outcome of orthotopic liver transplantation (OLT). Increasing evidence of sex-specific disparities in OLT outcomes necessitates body composition scores that are equally predictive in both sexes. We investigated the interplay between muscle and fat composition as well as gender in a multicentric European cohort of patients undergoing OLT.

Methods
697 patients undergoing OLT at the Charité - Universitätsmedizin Berlin (n=414, 2010-2020, discovery cohort) and the University Hospital RWTH Aachen (n=283, 2010-2018, validation cohort) were included. CT-based body composition was assessed at lumbar level 3/4. The parameters skeletal muscle mass, muscle composition, and visceral and subcutaneous fat quantity were combined into an Integrative Muscle-Adipose-Score (IMAS) and correlated with patient outcomes in

univariable and multivariable regression analyses. Survival was reported with 95% Confidence intervals (CI) and Hazard ratios (HR). Unisex Cutoffs were derived via ROC analysis and Youden-Index. The sex specific performance of IMAS was compared to the Balance of Risk score (BAR).

Results

Recipient and donor ages were 57 ± 10.9 and 58 ± 16.5 years in the Berlin cohort, and 55 ± 11.3 and 56 ± 15.8 years in the Aachen cohort, respectively. 215 (31%) patients were female. IMAS quartiles successfully stratified overall survival (OS) in both the Berlin (p0.003) and Aachen (p0.016) cohorts. Patients with a low IMAS had significantly reduced OS (Berlin: 83.4 vs. 97.7 months p=0.009; Aachen: 57.4 vs. 68 months; p0.021). The results remained significant in a multivariable analysis. While the BAR-Score failed to predict OS in female patients, sex-specific IMAS Cut-offs were independently prognostic of OS in both sexes (male: HR 1.743, CI: (1.238 – 2.456); p<0.001; female: HR 1.921 (CI: 1.062 – 3.477); p0.031). Low IMAS was associated with significantly lower OS in male (78.7 vs. 100.4 months; p<0.001) and female (87.5 vs. 106.9 months; p0.022) patients.

Conclusion

The integration of key metabolic body compartments into a unified index is a novel tool for sex-specific risk assessment of long-term patient survival after OLT.

PV04-05

Targeting Cancer Beyond The Patient: Machine-Perfused Liver Specimens As A Model For Oncologic Innovation

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Introduction

Liver resection is a cornerstone of curative treatment in hepatobiliary malignancies. The Introduction of ex vivo machine perfusion for resected liver tissue presents a novel opportunity to explore targeted oncologic therapies and study hepatic and immunological function under near-physiological conditions. To date, machine perfusion has primarily been used in liver transplantation to improve organ preservation, assess marginal grafts, and optimize graft function prior to implantation.

Methods

In this study, applied normothermic machine perfusion (NMP) to human liver specimens obtained from oncologic resections. Following partial hepatectomy, the portal vein (left or right branch), hepatic artery (left or right branch), and bile duct were successfully cannulated. Organs were perfused with an oxygenated erythrocyte-based solution under normothermic conditions. Functional viability was assessed based on hemodynamic parameters, bile production, and metabolic activity. Intra-perfusion ultrasound was employed to visualize tumor morphology and parenchymal architecture during perfusion.

Results

We successfully established stable machine perfusion of resected human liver specimens. Vascular resistance remained stable throughout the perfusion period of up to 24 hours. Additionally, we observed consistent bile production, active glucose metabolism, effective lactate clearance, and stable pH values. Ultrasound imaging enabled the assessment of differential vascular structures between tumor tissue and surrounding parenchyma.

Conclusion

Our findings confirm that machine perfusion of resected human liver segments is technically feasible and preserves essential metabolic and excretory function ex vivo. This establishes a foundation for future applications in translational oncology, including the testing of targeted anti-tumor therapies, immunotherapeutic interventions, and metabolic studies. By providing access to viable, patient-derived human liver tissue outside the body, this model may serve as a powerful platform for personalized treatment strategies and advance the development of precision oncologic therapies.

PV04-06

Incidence Of Acute Rejection Using Immune Checkpoint Inhibitors To Downstage HCC Prior To Transplantation – A Single Center Study

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Introduction

Hepatocellular carcinoma (HCC) is a primary indication for liver transplantation in China, with evolving inclusion criteria, particularly concerning tumor downstaging beyond Milan criteria before transplantation. Immune checkpoint inhibitors (ICIs), targeted therapies, and their combination have become pivotal in pretransplant treatment, showing promising oncological benefits. However, these therapies are associated with a higher incidence of acute rejection (AR). This prospective analysis evaluated one-year outcomes, focusing on AR, recurrence-free survival (RFS), and overall survival (OS).

Methods

Between October 2018 and December 2023, 69 patients underwent LT for HCC, with 59 receiving tumor downstaging prior to LT. The cohort was divided into three groups based on downstaging therapies:

- **Group 1 (n=41):** TACE, RF ablation, or resection.
- **Group 2 (n=6):** Targeted therapy alone.
- **Group 3 (n=12):** Combination of targeted therapy and ICIs.

The cohort's median age was 50.5 years, comprising 56 male and 3 female patients. Immunosuppression followed a standardized protocol involving Basiliximab, Tacrolimus (Tac), initial Mycophenolate Mofetil (MMF), later switched to Sirolimus, and steroids (1).

Results

The median interval between the Conclusion of ICI therapy and LT was 41.2 days with a range of 10-87 days. At one year post-transplant, no cases of AR were reported. RFS rates for Groups 1, 2, and 3 were **93%, 84%, and 84%**, respectively, while OS rates were **85%, 100%, and 75%**.

The TNM staging at transplantation was as follows:

- **Group 1:** 13 patients with T2-T4 and 28 with Tx-T1.
- **Group 2:** 3 patients with T2 and 3 with Tx-T1.
- **Group 3:** 4 patients with T2-T3 and 8 with Tx-T1.

Conclusion

The prospective evaluation of LT recipients with prior ICI therapy revealed no increased incidence of AR compared to those without ICI therapy. This outcome may be attributed to our standardized protocol and meticulous postoperative monitoring, including immunosuppression management. RFS and OS were comparable across all three groups in one year.

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PV04-08

Cell-Mediated Immunity To Assign The CMV Status In Liver Transplant Recipients With Passive Immunity

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Introduction
Correct determination of the cytomegalovirus (CMV) infection status of the recipient and the donor is essential to guide preventive management strategies. As serology may be falsely positive in patients with passive immunity, guidelines identified a need for assessing the utility of CMV-specific cell-mediated immunity (CMI) as an alternative to assign the CMV infection status.

Methods
In a multicenter HEPHAISTOS substudy, blood samples from 92 liver transplant recipients (52.9±9.1 years of age, 24 female/68 males) were tested at transplantation, and on follow-up in 44 patients (mean follow-up time 304±117 days). CMV-specific antibodies were determined using ELISA, CMI was quantified after stimulation using intracellular cytokine staining.

Results
Serology and CMI were concordantly negative in 39 (42.4%), and concordantly positive in 41 (44.6%) of the 92 patients. A discordant positive serological test and a negative CMI test indicative of passive immunity was found in 12 (13.0%) patients. Median antibody levels in seropositive patients with discordant results were significantly lower as compared to patients with concordant results (29.3 (IQR 20.6) versus 182.7 (IQR 226.8) RU/ml, $p<0.0001$). Median CMI levels in concordantly positive patients were significantly higher (1.89 (IQR 2.66) % CD4 T cells) as compared to patients with concordantly negative or discordant results (0.01 (IQR 0) % CD4 T cells), $p<0.0001$). Among 22 CMI negative patients with follow-up data, 11 underwent primary infection with conversion of both antibodies and CMI, whereas 11 patients remained negative. All 22 tested patients with positive CMI remained positive on follow-up.

Conclusion
Evidence for passive immunity was found in more than 10% of liver transplant recipients. While a truly positive infection status is associated with high levels of both antibodies and T cells, low antibody levels should raise suspicion of a falsely positive CMV infection status, which may be confirmed by absence of CMV-specific T cells.

PV04-09

Effects Of Liver Mobilization During Kasai Portenterostomy: Results From A Multicenter Retrospective Case-Control Study

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Introduction
Visualization of the portal plate can be challenging during Kasai portoenterostomy (KPE). Intraoperative liver mobilization (LM) and liver eversion are preferred by some surgeons but remain controversial as these procedures present challenges for anesthesiologists and may complicate liver transplantation (LT) due to increased adhesions. Data on LM during KPE remain elusive. This study aimed to assess the effects of LM on the intraoperative, postoperative, and long-term clinical outcomes of patients with biliary atresia (BA).

Methods
We present a multicenter retrospective case-control study from high-volume BA centers in Europe and the USA. Three centers each were included for the LM group

(n=142) and the non-LM group (n=62). Pre-, intra- and postoperative clinical and laboratory data were collected, including outcomes at the 2-year follow-up (native liver survival vs. liver transplantation) and transplant parameters.

Results

Intraoperatively, patients in the LM group received catecholamines more frequently (LM: 100%, non-LM: 46%, p<0.0001), required more intravenous fluids (LM: 116.2 ml/kg, non-LM: 79.15 ml/kg; p<0.05), and had higher blood transfusion rates (LM: 18.91 ml/kg, non-LM: 7.59 ml/kg; p<0.0001) compared to the non-LM group. In the immediate postoperative period, liver function tests in the LM group showed a significant elevation (AST: LM: 1,166 U/l, non-LM: 374.6 U/l; p<0.0001; ALT: LM 456.8 U/l, non-LM: 206.7 U/l; p<0.0001), but levels decreased to preoperative values within one week post surgery. Long-term follow-up revealed that patients in the non-LM group underwent longer transplant surgeries (LM: 295.3 min, non-LM: 509.8 min; p<0.0001) and required more blood transfusions during LT (LM: 55.26 ml/kg, non-LM: 95.81 ml/kg; p<0.001). Of note, long-term native liver survival was significantly longer in the LM group compared to the non-LM group (p<0.05).

Conclusion

While patients undergoing LM during KPE require more intensive anesthesiological management and exhibit greater hepatic stress postoperatively, there is no evidence of negative effects on native liver survival or transplant surgery. Further prospective studies are needed to confirm our findings.

PV04-10

Clinical And Microbiological Risk Factors Associated With Histopathological Fungal Infection In Liver Transplant Explants: A Retrospective Cohort Analysis

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Introduction

Chronic graft failure remains a significant clinical challenge after liver transplantation. Invasive fungal infections (IFIs) are increasingly being recognized as contributors to reduced patient survival. This study aimed to evaluate the clinical and microbiological risk factors associated with histopathologically confirmed biliary IFIs in explanted liver grafts.

Methods

In this retrospective cohort study, 144 transplantations performed between 1990 and 2019 in 132 patients were analyzed. Patients were stratified into two groups based on the presence (n = 41) or absence (n = 103) of histopathologically confirmed biliary IFI. Clinical data and microbiological cultures of bile and abscess fluid were reviewed. Survival outcomes were assessed using Kaplan–Meier analysis, and independent risk factors were identified using multivariate logistic regression.

Results
IFI was detected in 28.5% of explanted livers. Patients with IFI exhibited significantly higher rates of ischemia-type biliary lesions (90.2% vs. 41.8%, p<0.001) and hepatic artery thrombosis (51.2% vs. 16.5%, p<0.001) than those in the non-IFI group. Longitudinal fungal cultures from the bile and abscess fluid were more frequently positive in the IFI group (84.9% and 77.8%, respectively) than in the non-IFI group (63.8% (p=0.033) and 37.5% (p=0.017), respectively). Survival analysis demonstrated markedly reduced outcomes in the IFI group, with median patient survival of 2.9 years versus 11.8 years (Gehan-Breslow-Wilcoxon test p=0.0087) and median organ survival of 1.4 years versus 3.5 years (Gehan-Breslow-Wilcoxon test p=0.0062). Multivariate analysis identified non-anastomotic biliary lesions (odds ratio [OR] = 9.9) and hepatic artery thrombosis (OR = 3.4) as independent predictors of IFI.

Conclusion
Histopathologically confirmed biliary IFI in liver transplant recipients is associated with ischemia-type biliary lesions, arterial thrombosis, and markedly reduced survival. The fungal positivity rate of bile and abscess fluid cultures is significantly associated with biliary IFI. Further microbiological studies are warranted to improve early diagnosis.

PV04-12

Pediatric Non-A–E Hepatitis And Liver Transplantation: A 15-Year Review Across The COVID-19 Era

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Introduction
Non-A–E hepatitis (NAEH) is a rare cause of acute liver injury in children. Following the 2022 global outbreak of unexplained pediatric hepatitis, immune-mediated mechanisms, possibly linked to COVID-19, have gained attention. This study analyzes disease course, liver transplantation, and transplant-free survival over 15 years at a single center.

Methods
Pediatric patients (3 months–18 years) diagnosed with acute NAEH between 2009 and 2024 were included. Criteria were AST or ALT >500 U/L and exclusion of known causes. Patients were grouped into pre-COVID (2009–2018) and post-COVID (2019–2024) cohorts. We analyzed clinical presentation, transplant listing (including high urgency), transplant-free survival, histopathology, and infectious triggers.

Results
Forty-nine patients were identified, with more cases post-COVID (5.8 vs. 2.0/year). Despite similar baseline data, liver transplantation was less frequent after COVID-19 (6.8% vs. 40%, p=0.0137), indicating better transplant-free survival. Ten patients (20.4%) underwent transplantation, seven listed as high urgency (median wait: 2 days). Transplantation correlated with encephalopathy, high INR, and low ALT levels; ALT >3000 U/L predicted spontaneous recovery (p=0.044). Histopathology (n=35) showed hepatocyte necrosis, mixed infiltrates, and early fibrosis. Infectious triggers were found in 53% (e.g., HHV-6, EBV, influenza B), but no adenovirus. Fourteen patients (28.6%) developed hepatitis-associated aplastic anemia (HAAA), often weeks after hepatitis. Liver function mostly recovered without transplantation, but six required stem cell transplantation.

Conclusion
This 15-year single-center review shows an increase in pediatric NAEH cases post-COVID, improved transplant-free survival, and reduced urgent liver transplantation. A significant subset developed HAAA, requiring hematologic management. Findings support immune-mediated injury. Early risk stratification remains critical for transplant decisions.

PV04-13

Living Related Liver Transplantation In A Child With Unexpected Consequences...

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Introduction
We report on a 4 year old girl with biliary atresia and subsequent Kasai procedure who underwent liver transplantation (LTx) at the age of 6 months.

Methods
LTx was performed by a living donor graft from her mother (segments II/III). Donor evaluation was performed according to our protocol. Except for mildly elevated AST and bilirubin in the laboratory tests, all examinations were without abnormalities, in particular the mothers medical history. The post transplant phase was complicated by biliary strictures and recurrent cholangitis and the need for percutanous transhepatic cholangiodrainage. Cholangitis was treated with intravenous antibiotics and the child repeatedly received Metamizol during febrile episodes. After ending intravenous antibiotics the girl was treated with Ciprofloxacin, later cefaclor as cholangitis prophylaxis.

Results
Five months after LTx the mother noticed increasingly vulnerable skin in her daughter, especially in the region of face and hands. Four months later the girl started developing superficial blisters and wounds healed slowly leaving scars. After thorough examinations the diagnosis of variegate porphyria (VP) was made by plasma fluorescence scan demonstrating elevated concentrations of delta-aminolevulinic acid and porphobilinogen. Genetic testing in the child revealed a heterozygous variant in the protoporphyrinogen oxidase (PPOX) gene. Subsequently the mother as living donor was tested for biochemical markers of VP with positive results. Genetic testing revealed the same heterozygous variant in the PPOX gene in the mother and maternal grandfather. Mother and grandfather never reported any symptoms of acute porphyria. Even after living liver donation the mother never noticed any clinical features of VP.

Conclusion
We postulate that VP was triggered in the transplanted liver by stress, medications and immunological reactions, unmasking the previously biochemically and clinically silent partial deficiency of PPOX in the maternal graft. To our knowledge this is the first report of this rare disease after living donor LTx in a child. We feel this case should sensitize professionals for the risk of acquiring rare diseases even in the setting of living donor LTx.

PV04-14

Biliary Reconstruction In Liver Transplantation With Primary Sclerosing Cholangitis: Roux-en-Y Hepaticojejunostomy Or Duct-To-Duct Anastomosis?

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Introduction
Bile duct reconstruction in case of liver transplantation (LT) in patients with primary sclerosing cholangitis (PSC) is an ongoing matter of debate. The traditional Roux-en-Y hepaticojejunostomy (RY) is associated with a smaller number of postoperative strictures, while in recent analyses, a duct-to-duct reconstruction (DD) showed comparable results with a decreased rate of cholangitis and a preserved anatomy for endoscopic procedures. Aim of our study was to review patient survival and postoperative outcomes after LT in PSC Patients based on the type of reconstruction in two high-volume LT centers in the Eurotransplant region.

Methods
We retrospectively analyzed 94 PSC patients, who underwent a primary LT between 2010 and 2024 at the Essen University Hospital or at the RWTH-Aachen. Correlation of bile duct reconstruction with 90-day and 1-year survival was assessed with the Kaplan-Meier method. Predictors of biliary and major postoperative complications were identified via logistic regression. Correlation of donor and recipient data with patient survival was tested via Cox regression.

Results
Biliary reconstruction was performed as RY in 42 Patients and DD in 52 Patients. There was no significant difference in 90-day and 1-year survival (92.7% vs 92.3% and 90.1% vs 88.3%, for RY and DD, respectively, p=0.573) as well as in major complications marked by a comprehensive complication index >75 (p=0.412). DD was associated with an increased number of bile duct stenosis (9.5% vs 30.8%, p=0.012), whereas the rate of anastomotic insufficiency, ischemic complications, cholangitis, and need for revision surgery showed no difference in both groups (4.8% vs 9.6%, p=0.373; 2.4% vs 3.8%, p=0.688; 4.8% vs 7.7%, p=0.563; 7.1% vs 9.6%, p=0.669). The technic of biliary reconstruction was no predictor for mortality or major postoperative complications (p=0.820 and p=0.504, respectively).

Conclusion
Both types of LT biliary reconstruction are effective and safe for PSC Patients, with comparable rates of patient survival and major postoperative complications. However, the increased number of anastomotic stenosis in case of DD highlights the importance of an individualized approach for each patient.

Poster Session 05: Kidney 2

PV05-02

Lateral Flow Assay To Detect CXCL10 As A Suitable Biomarker For Polyomavirus-Associated Nephropathy After Kidney Transplantation

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Introduction
Kidney grafts are the most frequent transplanted organs world-wide, but donors are rare. Thus, it is relevant to keep the renal graft under intense surveillance to detect severe infections such as polyomavirus-associated nephropathy (PVAN) as early as possible. Regular check-up examinations often include a kidney graft biopsy. To avoid this invasive procedure, point-of-care-tests such as a lateral flow assay (LFA) for fast detection of suitable urine biomarkers are urgently needed. We evaluated the chemokine CXCL10 for its indicative performance in urine screening, and developed an LFA for fast detection.

Methods
CXCL10 concentration was determined by ELISA in urine samples of kidney transplant recipients (KTRs) with biopsy-proven PVAN, T-cell mediated rejection (TCMR), or antibody-mediated rejection (ABMR) according to

BANFF, with a normal biopsy or with urogenital tract infection (UTI) for statistical evaluation. Subsequently, an LFA for CXCL10 detecting PVAN was established.

Results

CXCL10 proved significantly increased in PVAN (114.8 ± 177.3 pg/mL, n = 22) vs. control (11.4 ± 22.3 pg/mL, normal biopsy, $p < 0.000001$, n=45), whereas it was not indicative in ABMR or UTI. The newly established LFA for binary detection of CXCL10 showed a high sensitivity and specificity (71,4% rsp. 84,8%) in PVAN with an Area Under the Curve (AUC) of 0.83 against control according to Receiver Operating Characteristic analysis.

Conclusion

The new LFA is a suitable new point-of-care test for non-invasive urine screening of KTRs to support the diagnosis of PVAN after kidney transplantation.

PV05-03

Risk-Stratified Delisting Strategy In A Highly Sensitized Kidney Transplant Recipient Within The Eurotransplant Kidney Allocation System (ETKAS)

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Introduction

HLA immunization due to previous transplants, pregnancies and/or transfusions generally results in decreased chances of finding immunologically suitable kidney transplants for immunized patients. Consequently, highly immunized kidney transplant candidates are accumulating on the waiting list. With the Introduction of Imlifidase, a cysteine protease that cleaves the entire IgG pool within hours after administration, HLA-directed antibodies get inactivated creating a window of opportunity to cross the HLA barriere in transplantation. Since Imlifidase is generally administered after the allocation process occurred and just a few hours prior to transplantation, the effect of desensitization due to Imlifidase has to be anticipated by an active delisting of unacceptable HLA while the patient is still waiting for an organ offer.

Methods

Here, we report on a case of a 40-year old female kidney transplant recipient of blood group A, highly immunized by HLA class I and II cytotoxic IgG antibodies and waiting for her 4th kidney transplant with a donor frequency of as low as 0.07%. The immunological work-up as an Imlifidase candidate included Single Antigen Bead assays on diluted sera as well as complement-binding assays.

Results

An individual three-step risk-stratified delisting strategy resulting in increased donor frequencies of up to 25% was developed and applied for the patient while she was waiting for a kidney transplant within the Eurotransplant Kidney Allocation System (ETKAS). After seven months of waiting within ETKAS finally an organ offer could be accepted. After Imlifidase administration HLA antibodies could be inactivated within four hours and consequently the virtual crossmatch could be converted allowing transplantation.

Conclusion

We described a case of a successful risk-stratified HLA delisting strategy for a patient desperately waiting for an immunologically suitable organ offer within ETKAS.

PV05-05

Favorable Metabolic Effects Of SGLT2 Inhibition At 1 Year in Kidney Transplant Patients - Comparison With A Control Group

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Introduction
SGLT2 inhibitors (SGLT2i) have been shown to slow the progression of chronic kidney disease (CKD) and reduce proteinuria. Positive metabolic effects have also been observed in kidney transplant recipients. This study aimed to compare the effects of SGLT2i therapy on graft function and metabolic parameters with a matched control group to strengthen the validity of these observations.

Methods
In this retrospective analysis, 100 renal transplant patients receiving SGLT2i (intervention group, IG) were matched with 100 controls (control group, CG). Outcomes assessed at 6 months and 1 year after treatment initiation included body mass index (BMI), HbA1c, albumin-to-creatinine ratio (uACR), estimated glomerular filtration rate (eGFR, CKD-EPI formula), blood pressure, and safety parameters. Patients with chronic antibody-mediated rejection were excluded for uACR analysis (10 matched pairs).

Results
At 6 months, BMI decreased significantly in the IG (-0.23 kg/m^2) compared to an increase in the CG (+0.23 kg/m^2, p = 0.013). After 1 year, this trend continued (-0.41 kg/m^2 in IG vs. +0.16 kg/m^2 in CG, p = 0.004). HbA1c levels were reduced exclusively in the IG, by 0.26% after 6 months and 0.42% after 1 year, with clear differences compared to the CG (p = 0.04 and p = 0.011, respectively). Changes in uACR did not differ significantly between groups at 6 months (+1.67% IG vs. +16.02% CG, p = 0.535) or 1 year (-10.71% IG vs. +99.62% CG, p = 0.458 due to high standard deviation). Similarly, the eGFR declined comparably in both groups (-2.3 vs. -0.93 mL/min/1.73m^2 at 6 months; -2.83 vs. -2.32 mL/min/1.73m^2 at 1 year; p = 0.306 and p = 0.507, respectively). Blood pressure remained stable across both groups. Regarding safety, there were no significant differences in urinary tract infections, cardiovascular event rates and hospitalizations between the groups.

Conclusion
In renal transplant recipients, SGLT2i therapy was associated with favorable metabolic effects, including significant reductions in BMI and HbA1c, compared to matched controls. No significant differences were observed regarding changes in uACR or eGFR decline after 1 year. Overall, SGLT2i therapy appeared safe, with a low rate of adverse events.

PV05-07

Disparities In Long-Term Kidney Transplant Outcomes By Recipient Age: Insights From A Large Prospective Cohort Study

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Introduction
Current age-related differences in long-term outcomes after kidney transplantation are not well reported. This study evaluates infection and rejection rates, graft loss, and patient survival across different age groups over a 5-year follow-up period.

Methods
This prospective cohort study included 572 adult kidney transplant recipients enrolled in the DZIF Transplant Cohort, who underwent transplantation at the University Hospital Heidelberg between 01/2012 and 12/2023. Patients were categorized into three age groups: <40 years (n=147), 40–60 years (n=279), and >60 years (n=146).

Clinical events were systematically documented, with all occurrences taken into account up to December 2024.

Results
Over the 5-year follow-up, infections occurred in 94.1% of patients >60 years, representing the highest rate among all age groups (overall 80.6%, p<0.0001). Bacterial infections were the most frequent (56.7%) and significantly more common in older recipients (>60 years: 77.0% vs. 54.0% in 40–60 years and 47.9% in <40 years, p<0.0001). While viral infections affected 49.5% of patients without significant differences between age groups (p=0.761), fungal infections were strikingly more frequent in recipients >60 years (9.8% vs. 0.9% in both younger groups, p=0.002). The overall 5-year graft failure rate was 9.8%, rising substantially in patients >60 years (21.0% vs. 7.7% in 40–60 years and 5.2% in <40 years, p<0.0001). Among those with graft failure, nephrectomy was performed significantly more often in older recipients (>60 years: 50.2% vs. 35.3% and 18.2%, p<0.0001). The 5-year mortality rate was 7.6% in the total cohort, with a clear age-related increase (18.4% in >60 years vs. 5.3% in 40–60 years and 1.8% in <40 years, p<0.0001). In contrast, acute rejection occurred in 22.6% of patients, with no significant difference across age groups (p=0.448).

Conclusion
Older kidney transplant recipients experience markedly higher rates of infections, graft loss, and mortality compared to younger groups. However, it remains unclear whether age itself is the direct risk factor or if it serves as a surrogate for other modifiable risk factors commonly associated with aging.

PV05-08

Extraction Time And Delayed Graft Function: An Analysis In The Context Of German DBD Donors

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Introduction
In kidney transplantation, prolonged extraction time (from cold perfusion to organ removal) has been proven to exacerbate ischemic injury and as a result may increase the risk of delayed graft function (DGF). Prior studies offer conflicting insights: a cohort using the Eurotransplant database [1] associated longer extraction time with DGF only in donation after circulatory death (DCD), while other studies [2,3] implicated a higher risk also in donation after brain death (DBD). As Germany relies exclusively on DBD donors, with increasing number of expanded-criteria donors (ECDs), who are especially vulnerable to DGF, clarifying the role of extraction time is important. We propose, that the simultaneous, en-bloc nephrectomy during organ procurement can shorten the extraction time, which could furthermore reduce the occurrence of DGF.

Methods
We analyzed 371 DBD kidney transplants in two transplant centers in Germany (Würzburg 2017–2023; Essen 2019–2023), assessing DGF incidence (primary endpoint), 1-year graft survival, and long-term graft function (serum creatinine, GFR). Donor ECD status and procurement factors (e.g., thoracic organ co-procurement) were considered as potential confounders.

Results

The donor median age was 56 years, with an almost balanced sex distribution (47% female, 53% male) and a median BMI 26 kg/m^2. The median Kidney Donor Risk Index (KDRI) was 1.04 and 50% of donors met the ECD criteria. 25.1% of kidneys were procured simultaneously, which showed a significant reduction in median extraction time compared to those procured sequentially (50.0 vs. 56.25 minutes, p=0.021). DGF occurred in 27% of cases and the 1-year graft survival was 90% with a median serum creatinine of 1.54 mg/dL and median GFR of 47 mL/min at 1 year post transplant.

Conclusion

Given Germany's reliance on DBD only and rising ECD donors, our findings highlight the potential importance of the extraction time. Ongoing analyses aim to further clarify its impact on DGF, possibly identifying time reduction as a simple, actionable strategy to improve outcomes.

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PV05-10

Evaluation Of Long-Term Renal Function In Living Kidney Donors In Relation To Kidney Volume And The Biomarker suPAR

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Introduction

Living kidney donation represents an exceptional medical scenario, as healthy individuals undergo major surgery without any direct personal benefit. Therefore, thorough evaluation and careful selection of potential donors are crucial to minimize the risk of chronic kidney disease after donation and to ensure the long-term health of the donor.

This study aimed to evaluate MRI-based renal volumetry and the biomarker suPAR as potential pre-donation markers for predicting long-term renal function in living kidney donors.

Methods

In 85 living kidney donors at the University Hospital Heidelberg pre- and post-donation kidney volumes were assessed using contract-enhanced MRI scans. Linear and multivariate regression analyses were performed to investigate the influence of pre-donation kidney volume and the biomarker suPAR on the post-donation renal function.

Results

Spearman correlation analysis demonstrated a significant correlation between pre-donation total kidney volume

and long term estimated glomerular filtration rate (eGFR) as calculated by CKDepi and MDRD at the time of data collection. Moreover, the volume of the remaining kidney prior to donation correlated significantly with eGFR calculated by CKEepi at the time of data collection.

Pre-donation total kidney volume emerged as an independent predictor of estimated glomerular filtration rate post-donation calculated with the MDRD formula in multivariate linear regression analysis. Furthermore, living kidney donors with higher suPAR levels showed a more pronounced increase in serum creatinine over time.

Conclusion

Pre-donation kidney volume may serve as an additional predictive factor for post-donation kidney function, which can be assessed using routine MRI examinations without exposing the patients to additional radiation. Similarly, the biomarker suPAR, which can be easily obtained through a blood sample, may help predict clinically relevant impairments in kidney function following living kidney donation, thereby contributing to improved donor selection.

PV05-11

The Influence Of BKV, CMV And EBV Reactivation On The Development Of Post-Transplant Diabetes Mellitus In Kidney Transplant Patients

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Introduction

The development of post-transplant diabetes mellitus (PTDM) is a frequent metabolic complication affecting 20-30% of kidney transplant (KTx) patients and increasing the risk of cardiovascular diseases (CVDs). Several immunosuppressive agents (e.g. glucocorticoids, calcineurin inhibitors) have been shown to increase the risk for PTDM as well. Therapy associated complications like latent viral reactivations have not been only reported to influence graft or even recipient survival, but also to increase the susceptibility for PTDM.

Methods

In our study, we analyzed the reactivation of latent viruses such as BKV, CMV and EBV and their potential contribution to PTDM development in KTx patients during the first post-transplant year.

Results

366 KTx patients met inclusion criteria (HbA1c levels of <6.5% pre-transplant). 74 patients (20.22%) developed PTDM characterized by a HbA1c of ≥6.5% post-transplant. PTDM patients showed a higher prevalence of viral reactivations compared to non-PTDM. Furthermore, PTDM patients had higher white blood cells counts (p< 0.0001). Analyzing the temporal relationship between viral reactivation and PTDM by binomial testing and Kaplan-Meier survival curve analysis we identified a significantly increased probability (56.28%) of viral reactivation preceding the PTDM development. Furthermore, by defining thresholds for a sub-clinical inflammation by serum measured pro-inflammatory cytokines (IL-1β, IL-2, IL-6, IFNγ, TNFα) and performing again binomial testing accompanied by Kaplan-Meier survival curve analysis, we were able to decipher, that the event order "Inflammation-first" followed by "PTDM-second" had the highest significant probability of 85.29%.

Conclusion

Finally, our results indicate a strong temporal link between subclinical inflammation, triggered by latent viral reactivations and subsequent PTDM development in KTx patients.

PV05-12

Long-Term Success After HLA-Identical Kidney Transplantation In Monozygotic Twins Without Any Induction Or Maintenance Immunosuppression: A Case Series Of Three Patients

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Introduction

Kidney transplantation between HLA-identical monozygotic twins offers a unique chance for long-term graft survival without immunosuppression [1,2]. While studies show favorable outcomes after withdrawal of maintenance immunosuppression, complete omission remains rare due to risks of perioperative immune activation and non-alloimmune complications [3,4].

Methods

We present three HLA-identical monozygotic twin pairs who underwent kidney transplantation without any (neither induction nor maintenance) immunosuppression. Allograft function was monitored regularly with follow-up durations of 22, 7, and 4 years, respectively.

Results

All three patients had immediate normalization of kidney function and maintained excellent graft function throughout the follow-up period. Median serum creatinine levels were 1.23 mg/dL (1.17–1.29) in Patient 1, 1.13 mg/dL (0.96–1.19) in Patient 2, and 1.03 mg/dL (0.98–1.15) in Patient 3. Patient 1 was a 29-year-old-male who had end-stage renal disease (ESRD) due to chronic glomerulonephritis. He had an overall uneventful clinical course over the last 22 years, aside from a COVID-19 infection, which resolved without complications. Patient 2 was a 61-year-old male who received his third kidney transplant from his monozygotic twin. Pretransplant screening revealed a calculated panel reactive antibody (cPRA) of 63%, indicating significant prior sensitization from previous transplants. Both prior grafts were lost due to rejection. Despite this history, no desensitization or immunosuppressive treatment was initiated, given the complete HLA identity and full immunological compatibility with his twin donor. Patient 3 was a 43-year-old female with ESRD due to biopsy-proven IgA nephropathy. There were no clinical or histological signs of rejection or recurrent IgA nephropathy in a biopsy after transplantation. Due to the high-risk constellation of CMV (donor + / recipient -), Patient 3 developed a primary CMV infection after withdrawal of a 3-month valganciclovir prophylaxis, which was successfully treated.

Conclusion

This case series demonstrates that kidney transplantation between HLA-identical monozygotic twins can achieve long-term graft survival without any immunosuppression.

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PV05-15

Case Report: Postoperative Urinary Leakage After Kidney Transplantation Caused By Kidney Infarct.

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Introduction

Kidney transplantation (KT) remains the optimal treatment for end-stage renal disease, offering improved survival and quality of life. Despite advancements in surgical techniques and immunosuppression, complications like urinary leakage persist (incidence 1-8% [2,3]).

The most frequent cause is distal ureter ischemia due to disruption of periureteral blood supply during organ procurement [3,4]. Other causes include amongst others technical errors at the ureterovesical anastomosis, ureteral obstruction, and infection. Renal parenchymal infarction as a cause is extremely rare [1,4].

Methods

A 38-year-old male with hypertensive kidney disease underwent transplantation after nine years of hemodialysis. His medical history included hypertensive heart disease, renal anemia, secondary hyperparathyroidism, and thrombotic microangiopathy due to collagen mutation.

The donor organ presented unexpected anatomical challenges. Despite initial reporting of a single artery, back table preparation revealed two arteries, with one detached and unable to be connected to the kidney. After reperfusion, approximately 40% of the parenchyma showed no perfusion, primarily affecting the renal pelvis, resulting in partial necrosis.

Results

Postoperatively, the patient developed wound healing complications with urinary leakage, confirmed by scintigraphy and cystography. Intraoperatively, a urine leak from the renal infarction site was detected, necessitating percutaneous nephrostomy (PCN) placement and targeted drainage.

The urine leakage healed after the kidney became adhesive to the abdominal wall and was adequately drained. Cystography revealed stenosis in the middle third of the transplant ureter with urinary obstruction requiring continued PCN drainage, likely associated with BK virus infection.

In February 2025, the patient underwent ureter revision with native ureter anastomosis. Current kidney function is good with creatinine between 1.8-2.3 mg/dl.

Conclusion

This case demonstrates the importance of considering renal infarction in post-transplant urinary leakage evaluation. Early diagnosis using ultrasound, CT, and scintigraphy, combined with individualized management strategies, is crucial for preserving graft function.

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Poster Session 06: Thorax and Other

PV06-01

Long-Term Survival Of Immune Engineered Lung Allografts Without Systemic Immunosuppression Following Effective Post-Transplant Vaccinations In A Porcine Model

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Introduction

Lung transplantation (LTx) remains the only curative option for patients with end-stage pulmonary diseases, yet long-term survival is limited by chronic lung allograft dysfunction. Immunosuppression (IS) reduces the rejection risk, but increases the incidence of infections and malignancies. Furthermore, vaccination protects transplant recipients, yet the balance between pathogen- and graft-specific immune responses remains challenging[1].

Methods

Five minipigs were transplanted 6 years ago with MHC-silenced left-lung allografts and maintained without IS[2]. Animals were kept under specific pathogen-free (SPF) conditions. The recipient pigs were vaccinated against 5 common swine pathogens. Serum antibody titers were assessed after vaccination. Then, the animals were relocated to non-SPF housing. Donor-specific antibodies, cellular responses, lung integrity and functionality were evaluated by computer tomography (CT), flow cytometric, and histological analyses.

Results

All recipients remained clinically stable, showing no adverse effects, graft rejection, or infection following vaccination and maintenance under non-SPF conditions. Post-vaccination serological analyses demonstrated a significant increase ($p<0.0001$) of antigen-specific humoral responses above the predefined thresholds. Flow cytometric crossmatches and mixed lymphocyte reactions showed no significant development of donor-specific antibodies or T-cell alloreactivity. CT confirmed preserved lung architecture, symmetrical volume and perfusion with the absence of pathology bilaterally. Finally, histological analyses revealed intact alveolar structures without signs of acute or chronic graft rejection.

Conclusion

These findings demonstrate that long-term MHC-silenced lung allografts are capable of surviving without IS in a non-restrictive environment, allowing contact with pathogens. LTx using genetically engineered lungs enables vaccination responses without adverse effects or graft rejection. Consequently, these findings highlight the potential of immune engineered lungs to support protective immunity without compromising graft survival, paving the way for IS-free transplantation protocols and improved quality of life.

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PV06-02

Soluble Immune Mediator Profiling Identifies Immunological Conditioning Of Ex Vivo Perfused Lungs, Associated With Primary Graft Dysfunction (PGD)

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Introduction
Clinical lung preservation procedures strongly influence post-transplant outcomes and ex vivo lung perfusion (EVLP) was shown to reduce the risk for severe PGD. However, the physiological link between post-transplant clinical parameters and immunological alterations—especially during EVLP vs. cold static preservation (SOC)—remains poorly defined.

Methods
Soluble immune mediators (SIM, *n* = 103) were quantified in lung preservation solutions and recipient plasma before, after, at 24h, and 3 wks post-lung transplantation (LTx) in EVLP (*n* = 36) vs standard-of-care (SOC, *n* = 26) subgroups using Luminex-based multiplex assays. SIM profiles were correlated with clinical parameters and their compartment-specific gene expression was assessed via Xenium spatial transcriptomics of donor lung parenchyma and publicly available Human Cell Atlas datasets.

Results
Although overall SIM levels were higher in EVLP perfusates vs SOC preservation solutions, the ratios of pro- to anti-inflammatory SIM (e.g., IFN-γ/IL-10, IL-33/IL-10) were significantly lower in EVLP, indicating a reduced pro-inflammatory milieu. In recipient plasma, several pro-inflammatory SIM (IL-6, GM-CSF, CXCL10) were consistently reduced in the first 3 wks in EVLP recipients. Their lower levels in EVLP recipients correlated with improved PGD scores. Additionally, IL-6, IL-18, sCD40L, EGF, VEGF levels correlated with cold ischemic time in SOC, while uPA and VCAM-1 emerged as biomarkers of higher PGD scores and hypoxemia in both subgroups. Spatial transcriptomic of donor lung parenchyma revealed that IL-6 was predominantly expressed in endothelial and fibroblast compartments, whereas CXCL9/10, uPA, IL-1β, and TRAIL were higher in immune cells. Finally, we identified a significant association between primary diagnosis and PGD severity, particularly in cases of pulmonary arterial hypertension (PAH) and sarcoidosis.

Conclusion
Our findings highlight a complex interplay between PGD severity, hypoxia, ischemic time, immune mediator dynamics, and primary diagnosis. Both, the immune and non-immune compartments contribute to the ex vivo ischemic milieu. These findings may pave the way for improved lung preservation and LTx outcome.

PV06-03

Use Of Ex Vivo Lung Perfusion For Lung Transplantation – Longterm Results From A Single Center

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Introduction
Ex vivo lung perfusion (EVLP) offers a unique potential in evaluation, optimization and transplantation of lungs that would otherwise rejected. Between 2016 and 2025 371 lung transplants (LTx) were performed and 21 donor lungs were evaluated by EVLP. Aim of the study was to compare long-term results of more than 5 years in LTx recipients with or without the use of EVLP.

Methods
In a retrospective single-center analysis data from a prospectively collected database were analysed. The EVLP group (n=21) consisted donor lungs classified as marginal, that were evaluated by EVLP. The non EVLP group (n=19) consisted of conventional LTx recipients matched for age and pulmonary disease. Indication for EVLP: pO2< 300 mmHg on FiO2 1.0 at PEEP 8 cm H2O on retrieval or evidence of aspiration/ infection, persistent atelectasis. EVLP was performed according to Toronto protocol. Both groups were compared for the endpoints survival, primary graft dysfunction, rejection episodes and chronic allograft dysfunction.

Results
Recipient age was 56 ± 6 years in EVLP group and 58 ± 7 years non EVLP group (n.s.). The rate PGD grade 1 at 72h post-LTx was 13% in both groups (each 2). In the non-EVLP group, 6% (1) developed PGD2 and in the EVLP group 13% (2) PGD3 at 72h post-LTx (n.s.).

At last visit, post-LTx, forced expiratory volume in 1s (FEV1%) as percentage of predicted best was similar in the EVLP and non-EVLP group (78% and 80 %) (n.s.). Chronic lung allograft dysfunction was diagnosed in 2 patients in each group during follow up post-LTx. In EVLP group 2 patients had rejection episodes and 6 patients in the non EVLP group (n.s.). Overall survival was 86% in the EVLP and 94% in the non-EVLP group (n.s.).

Conclusion
These results show that recipients transplanted with donor lungs that were evaluated by EVLP can be transplanted with similar outcome as in conventional LTx regarding rate of primary graft dysfunction, lung function parameters, rejections and survival.

PV06-04

Mapping The Human Lung: A Spatial Transcriptomic Comparison Of Healthy Donor And Non-Tumorous Lung Parenchyma

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Introduction
Single-cell sequencing has significantly advanced our understanding in human tissues, especially the lung. Spatial transcriptomics technologies add an essential dimension by enabling the precise mapping of gene expression within tissue architecture. Here, we applied the Immuno-Oncology (OI) and Lung panels of 10xGenomics to compare healthy donor lung with resected non-tumorous lung parenchyma. We focused on the comparison of lung parenchyma derived from tumor-adjacent, fully vascularized "healthy" versus healthy donor lungs that have been perfused prior to explantation.

Methods
FFPE sections from tumor-adjacent (n=3) and donor lung parenchyma (n=6) were applied to the Xenium technology using the Immuno-Oncology (IO, 381 gene transcripts) and the Lung Panel (LP, 290 gene transcripts) to define the spatial distribution of immune and structural

cells in these "healthy" lung tissues. In parallel, circulating and resident immune subsets were identified by FACS.

Results

Out preliminary results show that healthy donor lung parenchyma has a reduced proportions of circulating T and NK cells compared to tumor-adjacent parenchyma, likely due to lung perfusion prior to transplantation. In contrast, tissue-resident memory (TRM) T and NK cells, clustering according to CD49a, PD-1 expression were maintained despite perfusion. Regarding the microenvironment, tumor-adjacent healthy parenchyma exhibits more interactions linked to chemokines like CXCL12, CXCL1, and CXCL5, while in healthy donor parenchyma CCL8, CCL11, and CCL13 represent the predominant chemokines.

Conclusion

These findings suggest a strong impact of perfusion on the immune compartment in the human lung. Donor lung parenchyma contains low proportions of circulating T and NK cells compared to tumor-adjacent tissue but both display substantial proportions of TRM T and NK cells. In addition, tumor-adjacent lung tissue seems to be influenced by the tumor microenvironment with respect to the chemokine milieu. This underlines the need for detailed investigations of "healthy" lung tissues according to their origin from donor or resected lungs.

PV06-05

Ten-Year Results Of Heart Rate Control With Ivabradine Or Metoprolol Succinate In Patients After Heart Transplantation

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Introduction

Sinus tachycardia after heart transplantation (HTX) due to cardiac graft denervation is associated with reduced post-transplant survival and requires adequate treatment. We analyzed the long-term effects of heart rate control with ivabradine or metoprolol succinate in HTX recipients.

Methods

This observational retrospective single-center study analyzed the ten-year results of 110 patients receiving ivabradine (n = 54) or metoprolol succinate (n = 56) after HTX. Analysis included comparison of demographics, medications, heart rates, blood pressure levels, echocardiographic features, cardiac catheterization data, cardiac biomarkers, and post-transplant survival including causes of death.

Results

Both groups showed no significant differences concerning demographics or medications (except for ivabradine and metoprolol succinate). At 10-year follow-up, HTX recipients with ivabradine showed a significantly lower heart rate (72.7 $\pm$ 8.5 bpm) compared to baseline (88.8 $\pm$ 7.6 bpm; $P < 0.001$) and to metoprolol succinate (80.1 $\pm$ 8.1 bpm; $P < 0.001$), a significantly lower NT-proBNP level (588.4 $\pm$ 461.4 pg/ml) compared to baseline (3849.7 $\pm$ 1960.0 pg/ml; $P < 0.001$) and to metoprolol succinate (1229.0 $\pm$ 1098.6 pg/ml; $P = 0.005$), a significantly lower overall mortality (20.4% versus 46.4%, $P = 0.004$), and mortality due to graft failure (1.9% versus 21.4%, $P = 0.001$). Multivariate analysis showed a significantly decreased risk of death within 10 years after HTX in patients with post-transplant use of ivabradine (HR 0.374, CI 0.182 – 0.770; $P = 0.008$).

Conclusion

Patients with ivabradine had a significantly better heart rate reduction, a lower NT-proBNP level, and a superior 10-year survival after HTX.

PV06-07

Incidence And Mortality Of Heparin Induced Thrombocytopenia Type II After Orthotopic Heart Transplantation

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Introduction
Heparin-induced thrombocytopenia type II (HIT-II) is a rare but potentially serious complication. In the context of complex procedures such as heart transplantation (HTX), it may lead to significant postoperative challenges. This single-center analysis investigates the impact of HIT-II on the perioperative course following HTX.

Methods
We retrospectively analyzed demographic and clinical data from all patients who underwent HTX at our center between 2010 and 2024. Patients were divided into two groups: those who developed postoperative HIT-II (positive heparin-PF4 antibodies in at least one laboratory sample; group 1) and those without antibodies (group 2). Both groups were comparable regarding underlying cardiac disease, preoperative function, and donor characteristics (age, gender, CMV status, and graft ischemia time). Perioperative morbidity and mortality were compared between groups.

Results
Between 2010 and 2024 n = 336 patients underwent heart transplantation in our center. Of these patients n = 17 (5 %) postoperatively developed a heparin induced thrombocytopenia. The mortality in this group 1 with HIT-II was increased with a 30-day-survival of 58,8 % compared to 88 % in group 2. The incidence of postoperative renal failure and neurological complications was comparable between the groups. Also, the occurrence of organ rejections, the need for ECLS or postoperative bleeding complications causing a re-sternotomy showed no significantly higher incidence in patients with HIT-II. Additionally, we could not observe significant correlation between incidence of HIT and gender or blood type of the recipients.

Conclusion
Although HIT-II is infrequent after HTX, it is associated with markedly increased 30-day mortality. Early diagnosis and prompt adjustment of anticoagulation therapy—e.g., to thrombin inhibitors—are essential for optimizing postoperative coagulation management.

PV06-08

The Role Of Tissue Resident Versus Circulating Lymphocytes In Pediatric Lung Transplantation

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Introduction
Lung transplantation (LTx) is the ultimate treatment for adults and children with end-stage lung disease (ELD). Limited data exist on dynamic immune cell changes in pediatric LTx recipients, particularly regarding circulating versus lung-resident immune repertoires. Tissue-resident memory (TRM) T and NK cells in the lung are defined by co-expression of markers such as CD69, CD103, PD-1, and CD49a. We hypothesize that TRM T and NK cells in the lung are established early in childhood and represent distinct lung-resident immune repertoires in different ELDs.

Methods
Lymphocyte subsets in peripheral blood of pediatric LTx recipients (n=14) were analyzed pre and up to 3 weeks post-LTx via FACS using T, B and NK cell panels. Explanted lung parenchyma and lymph nodes (n=10) were enzymatically digested and single-cell suspensions analyzed using these panels including TRM markers.

Results
Dynamic changes in circulating lymphocyte subsets were observed early after pediatric LTx, consistent with findings in adult recipients. Postoperatively, lymphocytes decreased due to lymphopenia, particularly absolute $CD4^+$ and $CD8^+$ T cell counts, while NK cell proportions increased. Comparison of blood, lymph nodes, and explanted lung tissue revealed distinct T cell subsets. Lung tissue exhibited higher frequencies of effector memory ($CCR7^-CD45RO^+$) and TEMRA ($CCR7^-CD45RO^-$) $CD8^+$ T cells, contrasting with $CCR7^+CD45RO^+$ naïve T cells predominant in blood and lymph nodes. Despite the young age of lung recipients, $CD69^+CD103^+CD49a^+$ TRM T and NK cells, mainly $CD8^+$T cells, were detected in pediatric lung parenchyma but not in blood or lymph nodes. The distribution differed substantially by age and between underlying ELDs, especially cystic fibrosis and surfactant defects.

Conclusion
TRM T and NK cells are detectable in pediatric lung tissue already at few months of age, indicating an early formation of tissue-resident memory and an impact of different ELDs. Ongoing spatial transcriptomics will further elucidate their localization. Comparing pediatric and adult immune repertoires may enhance understanding of T and NK cell development in pediatric lungs and their potential role in ELD and transplantation.

PV06-09

Impact Of Fungal Infections On Perioperative Outcome Following Heart Transplantation

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Introduction
Fungal infections can substantially affect outcomes after solid organ transplantation due to their severity in immunosuppressed patients. This single-center study assesses their impact on the perioperative course following heart transplantation (HTX).

Methods
Between 2010 and 2024, 336 patients underwent HTX at our center. Clinical and demographic data were retrospectively analyzed. Patients were divided into two groups: those without mycosis (group 1) and those with post-transplant fungal infections (group 2). Outcomes and complications were compared. All patients received prophylactic inhaled Amphotericin-B upon ICU admission; no routine intravenous antifungal prophylaxis was administered.

Results
In total, only n = 25 (7.4%) patients developed fungal infections during their hospital stay. Most frequently Aspergillus and Candida species were detected. On average, the infections occurred 25 days after transplantation, mostly located in the lungs (80%). We could not identify a sig-

nificant difference between the groups concerning the occurrence of organ rejections or postoperative bleeding complications leading to re-sternotomy. Low cardiac output syndrome (LCOS) with need for ECMO-therapy could be found in 28.2 % of group 1 patients compared to 60 % in group 2 (p = 0.002). Patients with fungal infections suffered more often from neurological complications. However, 30-day-survival was again comparable between the groups whereas one-year-survival was significantly better in patients without fungal complications (84,8 % compared to 36.0 % (p < 0.001)).

Conclusion

Although fungal infections were infrequent, they were associated with significantly increased rates of ECMO therapy, neurological complications, and reduced one-year survival. These findings highlight the long-term impact of mycosis and the need for strict monitoring and effective prophylaxis in heart transplant recipients.

PV06-10

Epidemiologic Characteristics And Personal Motives In Decision Of Organ Donation

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Introduction

Postmortal organ donations in Germany are rare. According to the Federal Institute of Public Health, more than 80% of people declare a positive attitude towards organ donation, but only half of them put this decision in writing. The aim of the study was to evaluate epidemiologic characteristics and personal motivation for a decision on organ donation.

Methods

An anonymous and voluntary online survey was performed in cooperation with *Mitteldeutscher Rundfunk (MDR)* from 30.01.2023 to 02.02.2023. Participants were asked on demographic characteristics and their reasons for decision making. Motivation for decision making was categorized into emotional and normative reasons by five experts independently. Data has been analyzed using multivariate logistic regression after approval by the Ethics Committee of the Medical Faculty of the University of Leipzig.

Results

Data of 24.580 responses was acquired. Decision making on organ donation decreased with older age and lower educational level. Women more often made a decision than men (OR 1.1). Being very well informed about organ donation doubles the chance of a decision (OR 2.0), and respondents who rate their level of information as less good or poor are less than half as likely to make a decision (OR 0.4 and 0.3, respectively) compared to those being well informed. Normative reasons such as spiritual background or ethic considerations were pivotal in decision making (ORs>1.0), while overall, emotional reasons, are associated with a lower chance of a decision (ORs<0.8).

Conclusion

Education and campaigning on organ donation can help to make an informed decision and decision making is more likely in educated and informed respondents. This asks for broader and more inclusive information offers to also reach older and lower educated population. Normative reasons seem to build the basis for the attitude on organ donation and are the key drivers in decision making process. Emotional perceptions can decrease the willingness to make a decision, which underlines the sincerity in the individual decision finding process on organ donation.

PV06-11

Ethical Potential Analysis Of Organ Donation After Controlled Circulatory Death (cDCDD) In Germany Using Liver Transplantation As An Example

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Introduction

For years, the number of patients waiting for a vital organ in Germany has far exceeded the number of available organs. Despite numerous initiatives, organ donation rates and thus organ transplantation rates in Germany remain very low, even compared to other European countries. Many European countries were in the same situation 20 years ago. There, the Introduction of controlled organ donation after circulatory death (cDCDD) (e.g., in Switzerland, the Netherlands, and Spain) has led to significantly higher donor numbers. Although these successes are clearly documented, this model has not yet been implemented in Germany.

Methods

Based on current normative, medical-ethical, and scientific data, we analyzed whether cDCDD would be feasible in Germany at this time. The following premises served as the basis for the study: a) The dead donor rule (DDR); b) Brain death is the death of the person; c) Maastricht III criterion (cDCDD): Controlled/expected cardiac arrest after termination of life-sustaining measures in the intensive care unit.

Results

Structured cDCDD programs are an established measure internationally to counteract the declining number of organ donations. In many countries, this is leading to an increase in the number of organ donations and successful transplants. Based on current normative data, while maintaining the dead donor rule and the brain death concept, cDCDD is justified for scientific and ethical reasons (donor autonomy, public trust, scientific ethics, etc.).

Conclusion

A structured cDCDD program should therefore also be possible in Germany, especially if current stakeholders engage in a knowledge-based discussion and a societal debate is facilitated [1] . Tempora mutantur, nos et mutamur in illis.

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PV06-12

Pancreatic Graft Thrombosis After Isolated Or Combined Pancreas Kidney Transplantation: A Retrospective Single-Center Study

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Introduction

Pancreatic graft thrombosis (PGT) is one of the most serious early complications following pancreas trans-

plantation, often resulting in graft loss, reoperation, or mortality [1-4]. This study evaluates the incidence, causes, and outcomes of PGT in patients who underwent either isolated pancreas or combined pancreas-kidney transplantation at a high volume German center.

Methods

A retrospective analysis of a prospectively documented transplant database was conducted in 215 patients who underwent pancreas transplantation at Knappschaft Clinics University Hospital Bochum between 2012 and 2023. We evaluated clinical outcomes including graft thrombosis, removal of the allograft, and graft function at one year as well as overall mortality. Additionally, perioperative donor and recipient risk factors were analyzed.

Results

PGT occurred in 20 patients (9.3%), of whom 15 (75%) required graft removal. Two patients died as a direct consequence of thrombosis. In total, 41 (19%) pancreas grafts were explanted due to thrombosis (n=15), pancreatitis (n=7), vascular erosive hemorrhage associated with pancreatitis (n=15), duodenal leakage (n=2), and poor perfusion (n=1). Overall mortality during the observation period was 16 patients (7.4%), with 2 deaths directly related to thrombosis and 14 from thrombosis unrelated causes.

At the one-year follow-up, 146 patients (68%) had a good functioning pancreas graft, 14 patients (6.5%) had limited graft function, and 5 patients (2.3%) experienced complete graft failure. A total of 24 patients (11.2%) had died within the first year, including 7 patients (3.3%) whose deaths were unrelated to the transplant.

Conclusion

Pancreatic graft thrombosis remains a leading cause of early graft loss and postoperative complications. Although the majority of patients had functioning grafts (74,5%) at one year, early complications significantly affect outcomes. Careful perioperative assessment of both recipient and donor along with timely surgical intervention and close postoperative monitoring is critical to improving graft and patient survival.

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PV06-13

Percutaneous Endovascular Intervention After Renal Transplantation As A Less Invasive Alternative To Open Surgery In Detection And Treatment Of Early Vascular Complications In Selected Cases

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Introduction

Early vascular transplant renal artery complications (TRAC) represent a relevant complication after kidney transplantation (KT). Open surgery for revision and re-anastomosis of the renal artery is a common, but invasive method of treatment. Endovascular approaches are challenging and knowledge about outcome and complications of early stent angioplasty in this cases is low. We present a single-center series of endovascular approaches in patients with early TRAC.

Methods

We performed a retrospective analysis of all patients who underwent KT between January 2017 and December 2024 at our centre and were diagnosed for TRAC by an endovascular approach within 8 weeks after KT. We compared postinterventional outcomes for the kidney transplant as well as clinical characteristics and morbidity to the status prior to endovascular intervention.

Results

Within the observed period, 462 KT were performed at our centre. 11 of 462 patients (2.38%) presented with TRAC and underwent endovascular intervention within 8 weeks after transplantation. 10 of 11 cases were cadaveric KT. Median duration of pretransplant haemodialysis was 8 years. Median time from transplantation to endovascular intervention was 16 days (IQR 19.5 days). Indications for endovascular intervention were stenosis, dissection and bleeding in eight, one and two cases. Stenting of the artery was performed in four cases. Periinterventional dislocation of the stent and unsuccessful stenting occurred in respectively one of these cases. Two successful coilings were performed for bleeding. A kinking of the artery was diagnosed in 4 cases followed by open surgery for reanastomosis. Kinking of the artery was ruled out in 1 case. Median serum creatinin and glomerular filtration rate at hospital discharge were 216µmol/L (IQR 169.0µmol/L) and 27ml/min (IQR 18.5ml/min) compared to preinterventional median serum creatinine of 615µmol/L (IQR 538.5µmol/L) and median glomerular filtration rate of 7ml/min (IQR 14ml/min).

Conclusion

Early stent angioplasty is a feasible method to diagnose and simultaneously treat early TRAC. Being an alternative to open surgery in selected cases, potential complications still have to be considered.

PV06-15

Enhancing Data Utilisation And Quality In The German Transplant Registry: Addressing Criticisms And Implementing Stakeholder-Driven Improvements

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Introduction

The German Transplant Registry (Tx Registry) centralises data on deceased organ donors, organ recipients, and living donors from Eurotransplant, DSO, and IQTIG. It provides anonymised data from 2006 to 2016 and consent-based data from 2017 onwards. Discussions at the 2024 German Transplantation Society (DTG) Annual Meeting highlighted systemic issues within the Tx Registry's data infrastructure, including problems with data completeness, redundancies, and difficulties in data linkage. These concerns underscored the need for systematic reforms to improve usability and quality for data recipients. In response, the Tx Registry initiated a stakeholder-centred process to address these shortcomings.

Methods

A dual approach was employed to address user needs and enhance data quality: (1) A survey and follow-up interviews identified challenges in data acquisition, usability, and unmet needs among users who had accessed registry data. (2) Expert workshops with the Tx Registry's Advisory Board, including data providers, developed strategies to resolve critical data issues such as redundancies and inconsistencies, fostering a collaborative environment for problem-solving.

Results

To address the identified challenges, the Tx Registry developed a forward-looking development plan for improvement over the coming years. This includes measures to further support data users and enhance data quality. Immediate actions involved creating a *Data User Handbook* and *Quick Start Guide* to facilitate data usage. Ongoing stakeholder engagement ensures that the plans and their implementation remain effective and aligned with user needs.

Conclusion

The *Data User Handbook* serves as a key tool to empower users, while reducing redundancy enhances the registry's reliability. The project highlights the importance of integrating user feedback and interdisciplinary expertise to address systemic challenges in transplant data management. Through ongoing stakeholder dialogue, the Tx Registry aims to adapt to challenges and maintain its role as a vital resource for healthcare and transplantation research.

E-Poster

EP-01

Incisional Hernias After Liver Transplantation: A Cohort-Based Risk Factor Analysis With Focus On Immunosuppression

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Introduction

Incisional hernias (IH) are a burden in visceral surgery with an occurrence of up to 43 % after liver transplantation (LTx). Diabetes mellitus, adiposity, age or intake of specific immunosuppressants are already known as rik factors[1]. The aim of this study was to futher target perioperative variables and their impact on IH occurrence and recurrence in a cohort of 121 liver transplanted patients with focus on immunosuppression to shed light on possible levers for prevention.

Methods

Herein, we perform a cohort-based risk factor analysis for the occurrence and reoccurrence of IH following LTx and surgical hernia repair. All adult patients who underwent surgical hernia repair due to IH following LTx at University Hospital Regensburg between 2006 and 2022 were screened to meet inclusion criteria of a minimum 12-month follow up and compared to an equal sized control cohort. Clinical data and blood serum levels for immunosuppression were retrospectively collected and analyzed.

Results

We recorded an IH occurrence post LTx of 17.9 %. Patients treated with mTOR inhibitors had a 5-times higher risk to develop IH (p = 0.016). Comparing Calcineurin inhibitors we firstly target Tacrolimus superior to Cyclosporine treatment with a significant protective effect in our cohort (OR 0.03, p = 0.007, binomial logistic regression analysis). Measured serum levels and used products of immunosuppressant groups were further uninformative. Recurrence rate of IH after surgical hernia repair was 38.7 %, notably immunosuppressive therapy regiment did not influence recurrence. Mesh implantation was preventive for IH recurrence with an OR of 0.17 (p = 0.047). No significant difference between technics of mesh implantation or material was observed.

Conclusion

We recommend careful evaluation of mTOR inhibitors during immunosuppressive therapy induction. Further, we observed beneficial effects of Tacrolimus compared to Cyclosporine administration in the context of incisional hernia development. Mesh implantation was significantly risk minoring for IH recurrence. Interestingly, immunosuppressants had no influence on IH recurrence, presumably to perioperative adjustments avoiding mTOR inhibitor intake.

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EP-05

Impact On Survival Of CMV-Serostatus And Postoperative CMV-Management Of Patients Receiving Liver Transplantation: A Centre Report

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Introduction

Cytomegalovirus (CMV) is described as a frequent opportunistic infection following liver transplantation causing major disease or allograft rejection.[1,2] Following current guidelines[3], patients undergoing liver transplantation in Germany are categorized depending on CMV-serostatus of donor and recipient. For high-risk patients, either prophylactic treatment or preemptive therapy in case of CMV-viraemia has become standard of care[4]. Purpose of this study was to identify the impact of CMV-serostatus and postoperative CMV-management concerning high-risk individuals on survival after liver transplantation.

Methods

Data of all patients, who underwent liver transplantation at University Medical Centre Schleswig-Holstein, Campus Kiel, were retrospectively analyzed. By using the database of our transplant coordinating office, we identified suitable patients. Further information was collected from the Eurotransplant database. Survival curves were plotted by the Kaplan-Meier method and statistical significance was determined by the log-rank test.

Results

Until the end of 2022 n=954 liver transplantations were performed at our centre with the first transplantation taking place in 1987. Excluding patients who underwent re-transplantation (137), combined transplantation (3) or paediatric patients (84) a total of 730 patients were included in this study. 173 CMV-seronegative patients received liver transplant from CMV-seropositive donors and were considered as high-risk group for opportunistic CMV-infection. Thereof 99 patients underwent prophylactic treatment whereas 74 patients were only treated in case of CMV-viraemia.

Survival analysis did not show significant differences between high-risk and non-high-risk individuals. Five-year survival rate was 69,7% in non-high-risk group and 65,7% in high-risk group. Also, survival rates did not differ depending on postoperative CMV-management of high-risk patients.

Conclusion

Regarding our results, there seems to be no correlation between CMV-serostatus and survival rate. Although studies e.g., Singh et. al. showed an impact of CMV-management of high-risk individuals on the occurrence of CMV-viraemia[5], we cannot report on any impact on survival in our series.

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EP-07

Tertiary Hyperparathyroidism After Kidney Transplantation - A Retrospective Single Center Study To Assess Prevalence And Outcome

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Introduction
Tertiary hyperparathyroidism (tHPT) can persist after kidney transplantation (RTx) and is associated with cardiovascular disease, increased risk of graft failure and all-cause mortality. Currently, there is an inconsistent definition of diagnostic criteria and differing treatment of tHPT after RTx. The aim of this retrospective study was to evaluate the prevalence and risk factors of tHPT after RTx in our transplant centre and to contribute to the development of a uniform definition and an evidence-based management concept.

Methods
In this retrospective study, data were collected from 172 patients who received RTx between January 2018 and June 2023. Laboratory parameters (ionized calcium (Ca_i), phosphate, parathyroid hormone (PTH), estimated glomerular filtration rate (eGFR, CKD-EPI formula)) were assessed 3 months, 6 months, and 1 year after RTx.

Results
49 patients (28.5%) had no elevated PTH, 53 patients (30.8%) had tHPT, defined by elevated PTH, Cai and reduced phosphate, by previous diagnosis of tHPT or use of calcimimetics. 70 (40.7%) had probable non-tertiary HPT with reduced eGFR (<60ml/min/1.73m2) and/or absence of hypercalcaemia and use of calcimimetics.

Multivariate logistic regression showed that an elevated Ca_i (p = 0.027, OR 8.445 (0.002-26123.717)) and PTH (p = 0.027, OR 1.006 (1.001-1.012)) before RTx increased the risk of tHPT one year after RTx. It was also shown that living donor transplantation reduced the risk of tHPT one year after RTx (p = 0.019, OR 0.043 (0.003-0.598)) compared to post-mortem donation. Finally, patients with tHPT had a lower eGFR (46 $\pm$ 18 ml/min/1,73m^2) one year after RTx compared to patients without HPT (56 $\pm$ 23 ml/min/1,73m^2; Mann-Whitney *U*-Test, p = 0.029).

Conclusion
An important feature for the diagnosis of tHPT is a consistent definition of tHPT after RTx In the case of hyperparathyroidism, tHPT must be distinguished from persistent or new-onset secondary HPT. Factors predictive of tHPT before RTx (high Ca_i or high PTH) are associated with an increased risk of tHPT after RTx. In our cohort, there is also evidence of decreased renal function in patients with tHPT; longer follow-up is needed and planned to assess this.

EP-08

Recipient And Graft Weight In Pediatric Liver Transplantation: Experience From A High-Volume Center

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Introduction
Pediatric liver transplantation (PLT) remains a life-saving intervention for children with end-stage liver disease. One key challenge is selecting the optimal graft, particularly in small recipients. The graft-to-recipient weight ratio (GRWR) is a predictor of outcomes in living donor liver transplantation (LDLT), but the ideal threshold in children under 10 kg is debated.

Methods
In this retrospective single-center study, 57 pediatric liver transplants using left lateral segment (LLS) grafts performed between 2019 and 2024 were analyzed. Outcomes were compared based on recipient weight (<10 kg vs. ≥10 kg) and donor type (LDLT vs. deceased donor liver transplantation [DDLT]). Endpoints included graft and patient survival, complications, graft function, and 90-day readmissions.

Results
Children <10 kg (n = 34) had similar patient (88.2%) and graft survival (88.2%) to those ≥10 kg (n = 23; 95.7% and 100%). Despite significantly higher GRWR in the smaller group (4.9% vs. 2.4%, p < 0.05), biliary and vascular complication rates were similar. However, acute cellular rejection (56.5% vs. 11.8%, p < 0.05) and 90-day readmissions (56.5% vs. 26.5%, p = 0.022) were more common in the ≥10 kg group. Living donation was more frequent in <10 kg recipients (61.8% vs. 8.7%, p < 0.05). The LDLT group had lower weight (7.1 kg vs. 11.8 kg) and higher GRWR (4.6% vs. 3.4%, p < 0.05). Vascular complications were more frequent in LDLT—hepatic artery thrombosis (13% vs. 0%) and portal vein thrombosis (21.7% vs. 2.9%)—but survival outcomes and biliary complications did not differ.

Conclusion
LLS transplantation achieves excellent outcomes in pediatric recipients across weight groups. A higher GRWR in children <10 kg does not increase rejection or biliary risk. While LDLT had more vascular complications, survival was unaffected. LLS grafts are safe and effective, especially in smaller recipients, and are important for expanding the donor pool.

EP-09

Clinical Implications Of Urinary Ethyl Glucuronide Screening In Long-Term Care After Liver Transplantation

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Introduction
Alcohol misuse after liver transplantation (LTx) can seriously impact graft and patient survival. However, to date, there is no defined standard procedure to identify patients at risk for alcohol-related complications after LTx. In order to improve detection of patients at risk, the University Hospital Tuebingen has therefore included measurement of urinary ethyl glucuronide (uEtG) into routine outpatient follow-up visits.

Methods
This is a 5-year follow-up of the initial uEtG screening cohort of our transplant center [1]. Patients were grouped by uEtG positivity at initial visit (group 1: initially uEtG positive; group 2: initially uEtG negative). Cutoff for positive uEtG was 500 ng/ml.

Results
Of the initial 362 patients, 269 (74%) still kept regular appointments at the outpatient clinic. 41 (11%) had died,

44 (12%) were lost to follow up, 8 were excluded for missing uEtG at time of follow-up. There was no significant difference for loss to follow-up (p=0.11) and death (p=0.88) between the two groups. All patients who had gotten re-transplanted in the meantime (n=4) were in the initial uEtG-negative group and were still uEtG negative at 5-year follow-up. Of note, 5 years after having implemented uEtG screening, only 8.5% of patients presented with positive uEtG (in comparison to 13% in the beginning). However, significantly more patients of the initially uEtG positive cohort (group 1) presented uEtG positive, again, in the 5-year follow-up (p=0.012).

Conclusion

5 years after implementing routine uEtG screening, this practice seems to have reduced the number of patients with positive uEtG test results at regular outpatient visits. This might be due to the fact that awareness is drawn to the topic of alcohol consumption, both in physicians and in patients. Patients presenting with positive alcohol markers, especially when repeatedly positive, require special attention. If signs of harmful alcohol use are detected, patients must be encouraged to seek professional help. It remains to be examined further, if alcohol markers can also play a role in determining the prognosis of patients, especially when including additional parameters, such as the longer detectable phosphatidylethanol (PEth).

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EP-10

Interdisciplinary Management Of DOAC Therapy In The Context Of Liver Transplantation: First Experiences From A German Transplant Center

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Introduction

The use of direct oral anticoagulants (DOACs) in patients with advanced liver disease remains controversial due to altered pharmacokinetics, increased bleeding risk and a lack of high-quality evidence, particularly in the context of liver transplantation (LTX). Portal vein thrombosis or atrial fibrillation, for which therapeutic anticoagulation is indicated, is seen in patients listed for a Tx. Recent data suggest that DOACs may be a alternative to low-molecular-weight heparins (LMWH), standardized approaches and treatment regimens are still lacking.

Methods

An interdisciplinary team of hepatologists, surgeons, hemostaseologists and anesthesiologists developed a standardized operating procedure (SOP) for the use of DOACs in Tx candidates at the University of Leipzig Medical Center. Each patient with a possible indication for DOAC underwent standard risk evaluation before listing and was re-assessed regularly after the listing to determine whether the indication for DOAC would still persist.

If one of these patients underwent Tx, the clinical course, perioperative management and the outcome of the Tx were analyzed for the current study. The study was approved by the local ethics committee (Reg.Nr 080/24-IK) for the retrospective evaluation of transplant patients.

Results

Between 07/24 and 04/25, we identified 5 patients actively listed for LTX under DOAC therapy. Three patients underwent successful LTX under DOAC therapy during the observation period. Patient and graft survival were both 100% at 30 days. One patient suffered from intra-abdominal hematoma due to arterial bleeding requiring relaparotomy (Clavien-Dindo IV). No thromboembolic events or DOAC-related complications were observed in the perioperative period and none of the patients were treated with a specific antidote.

Conclusion

Our data support the hypothesis that DOAC therapy can be safely continued in selected Tx when embedded in a structured interdisciplinary management pathway. The implementation of a SOP and board discussion were essential to ensure patient safety and optimal outcomes. Further prospective data are needed to refine criteria and timing of perioperative DOAC management in this complex patient population.

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