Swiss Transplantation Society
Société Suisse de Transplantation
Schweizerische Gesellschaft für Transplantation

23rd Annual Meeting of the Swiss Transplantation Society

ABSTRACT BOOK

January 22-23, 2026

Congress Hotel Seepark
Thun, Switzerland

Congress Organization
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SHORT TALKS

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Aims and Objectives

Solid-organ transplantation (SOT) is associated with good short-, and long-term outcomes. Chronic kidney disease (CKD), however, increases morbidity, and mortality. As patient selection and treatment strategies in SOT evolved, a contemporary analysis of the burden and impact of CKD in SOT is warranted.

Materials and Methods

Adult (≥18 years old) recipients of single and first heart (HT), liver (LiT), or lung (LuT) transplants, enrolled in the Swiss Transplant Cohort Study between May 01st 2008 and October 6th 2025 were included. Kidney transplant recipients were excluded. The primary endpoint (target event) was defined as an CKD-EPI equation estimated glomerular filtration rate (eGFR) below 60mL/min/1.73m^2, was assessed. A time-dependent subdistribution competing risks analysis (target event: CKD; failure event: death without CKD) was performed. A multivariable Cox proportional hazard regression model inferred the impact on overall survival.

Results

During the 17-year period, a total of 513 heart, 1456 liver and 669 lung transplant recipients were included. The median age at transplantation was 57.0years (interquartile range (IQR):48.0,62.0), 67.9% were male, with a median body mass index of 25.2kg/m^2 (IQR:22.0,28.7), and 80.7% of grafts were from brain death donors. Overall, CKD and death events occurred in 1703(64.6%) and 758(28.7%) patients respectively, during a median follow-up of 4.1years (IQR:1.0,8.3). The burden of CKD at baseline/1/3/5 years was registered in HT as 48.4/75.5/81.4/83.0%, for recipients of LiT as 24.9/50.0/57.2/61.7%, and for recipients of LuT as 0.3/44.1/56.8/62.7%. Accounting for covariates, CKD at baseline increased the hazard of death by 36% (adjusted hazard ratio:1.36; 95% confidence interval:1.14,1.63; p<0.001).

Conclusions

CKD affects two-thirds of non-kidney SOT recipients, with increasing prevalence up to 5 years after transplantation. Baseline kidney function has an important impact on overall survival. These findings suggest early referral to a specialized nephrologist in order to mitigate this impact may improve survival outcomes.

S 02 Hypothermic Oxygenated Perfusion (HOPE) Extends Preservation Time of Cardiac Grafts in a Porcine Model of Donation After Circulatory Death (DCD)

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Aims and Objectives

Perfusing DCD hearts on a normothermic, ex-vivo heart perfusion (EVHP) system, provides excellent outcomes that are comparable to conventional donation after brain death (DBD). Recently, HOPE has shown to be a promising approach to preserve and prolong out-of-body times of DBD cardiac grafts; however, there is limited knowledge in the context of DCD. Therefore, we investigated the use of HOPE to extend the out-of-body times of DCD hearts compared with normothermic perfusion.

Methods

A porcine model was used to simulate DCD conditions including 15 min functional warm ischemic time. HOPE hearts were perfused with modified St. Thomas No.°2 solution supplemented with erythrocytes. Coronary flow and perfusion pressure were monitored continuously and perfusate samples for later biochemical analysis were taken periodically. After a predetermined duration of HOPE perfusion, hearts were switched to normothermic perfusate (modified Krebs-Henseleit buffer supplemented with erythrocytes), warmed to normothermic temperatures and left ventricular function was measured under loaded conditions. Hearts in the normothermic group were perfused at 35°-37°C with normothermic perfusate until contractions were no longer visible. Ventricular function was assessed during left ventricular loading every 4 hours.

Results

HOPE perfusion extended out-of-body times up to 23 hours. Preliminary results show that HOPE hearts showed similar ventricular function at different timepoints (8h, 12h, 20h) to normothermically perfused hearts at 8h. During HOPE perfusion hearts appear to release less markers of oxidative stress and inflammatory cytokines.

Conclusions

Initial results demonstrate that it is possible to use HOPE to extend out-of-body times of DCD cardiac grafts beyond what is possible with normothermic perfusion, while well maintaining ventricular function. Potential mechanisms include reduced oxidative stress and inflammation with HOPE vs normothermic perfusion. These findings provide valuable insights into how to best preserve and extend out-of-body times of DCD grafts, which ultimately contributes to increasing donor organ availability.

S 03 Single-Kidney Transplantation with Discarded Partner Kidney vs. Dual Kidney Transplantation: Results from a National Cohort Study

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Background
The transplantation of a single kidney, while its partner kidney is discarded despite both having been initially offered (dual-offered, single-transplanted; DOST), represents a missed opportunity to preserve nephron mass and optimize donor utilization. Dual kidney transplantation (DKT) preserves nephron mass by transplanting both kidneys from a marginal donor, but its benefits relative to DOST remain underexplored.

Methods
In this nationwide multicenter cohort (2008–2021), we analyzed 36 DKT and 20 DOST recipients. Both groups were propensity-matched 1:2 to 112 regular single-kidney transplant recipients (RegT) based on donor and recipient characteristics. The primary endpoint was estimated glomerular filtration rate (eGFR) at 12 months. Secondary endpoints included eGFR through 5 years, death-censored graft and patient survival, perioperative metrics, and 12-month quality of life (EQ-5D).

Results
At 12 months, median eGFR was higher in DKT (50.8 ml/min/1.73 m^2) than DOST (33.5 ml/min/1.73 m^2) or RegT (38.0 ml/min/1.73 m^2; p >0.001), with differences sustained through 5 years. Graft and patient survival were similar. DKT involved longer surgery (270 vs. 163 min; p >0.001), greater blood loss (550 vs. 300 ml; p = 0.084), and more transfusions (75% vs. 30%; p = 0.0017) but no increase in delayed graft function or major complications. EQ-5D scores were higher in DKT (85.0) than DOST (70.0) and RegT (71.0; p = 0.048).

Conclusion
DKT is a safe and effective approach for marginal donor kidneys, offering superior graft function and quality of life without added perioperative risk. Broader adoption may reduce unnecessary organ discards and improve transplant outcomes.

S 04 Sex-specific changes in tubular repair and immune responses after renal ischemia-reperfusion injury.

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Context
Initial ischemia-reperfusion injury (IRI) contributes to poor kidney allograft outcomes, possibly through persistent inflammation and subsequent maladaptive repair. Epidemiological studies and preclinical models suggest that females are protected against the progression to fibrosis after acute renal injury, yet the underlying biological mechanisms remain largely unexplored.

Methods
We investigated sex-specific pathways of kidney repair and fibrosis using a unilateral 45-minute renal IRI model without contralateral nephrectomy in male and female C57BL/6 mice. Kidneys were harvested at multiple time points to analyze injury, repair, and fibrotic responses through semi-quantitative PCR, bulk RNA sequencing, histological staining, immunofluorescence, and flow cytometry.

Results
Distinct temporal and spatial patterns of renal injury emerged between sexes. In female kidneys, there was a lower expression of proinflammatory and profibrotic genes, coupled with improved metabolic responses and attenuated *Sox9* upregulation, a transcriptional regulator recently linked to tubular fate. Consistent with these molecular findings, histological analyses of the kidneys following IRI revealed reduced collagen deposition and tissue remodeling, with greater areas of preserved tubules in females compared to males. Interestingly, the expression of the three known estrogen receptors was sex-, spatial-, and time-dependent after injury, suggesting a dynamic role in orchestrating tissue responses. Concomitantly, macrophage infiltration differed between sexes, in severity and in polarization state, suggesting a link between innate immune responses and sex hormones-mediated signaling.

Conclusions
Altogether, our results highlight that female kidneys are less prone to inflammation and fibrosis. Moreover, the regenerative potential observed in female kidneys after acute ischemic injury appears to be mediated by estrogen receptor signaling and sex-specific innate immune responses. These findings open new perspectives for targeted therapies to enhance repair and reduce fibrosis after initial IRI in kidney transplantation.

S 05 Sex-dependent recovery of left ventricular function and corresponding gene expression in a rat model of donation after circulatory death (DCD)

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Aims and Objectives
Cardiac grafts obtained with donation after circulatory death (DCD) are exposed to potentially damaging conditions, including ischemia-reperfusion injury (IRI). While sex differences have been reported in other settings of cardiac IRI, little is known in DCD. Therefore, we aimed to investigate whether sex differences induce changes in the expression of genes in response to cardiac DCD conditions, which may contribute to sexual dimorphism in graft quality.

Methods
Hearts from male, female, and ovariectomized (OVX) Wistar rats underwent simulated DCD followed by 0 or 22 minutes of warm, in-situ ischemia. Afterwards, hearts were either directly collected or flushed with a cardioplegic solution followed by cold static storage and 60 minutes of warm reperfusion. During reperfusion, cardiac recovery was evaluated under conditions of left ventricular loading. Left ventricular tissue was used for bulk RNA-sequencing analysis.

Results
Recovery of ventricular function, measured as heart rate*developed pressure*maximum contraction rate, was significantly increased in females vs. males ($p = 0.007$); OVX recovery was similar to males. Reperfusion induced inflammatory and hypoxia-responsive gene programs in all sexes. Relative to females, males showed higher expression of metabolic pathway genes but reduced expression of cellular homeostasis programs. Genes positively correlated with recovery were higher in females and linked to ribosomal and chromatin remodeling pathways, while those elevated in males and OVX were associated with inflammatory and stress responses and correlated negatively with recovery.

Conclusions
Sex hormone–dependent gene expression changes may influence the heart's adaptation to ischemic stress and energy metabolism during DCD-induced IRI. Treating DCD hearts in a sexually dimorphic manner, considering differences in inflammatory pathways as well as metabolic adaptations, should improve cardiac graft quality in both sexes. These findings represent new information about the sexual dimorphism of cardiac DCD grafts and provide a basis for the optimization of DCD transplantation protocols.

S 06 Pulmonary Unveiling and Lung-Saving Embolism Protocol (PULSE)

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Aims
As international lung transplant waitlist mortality remains high, the development of new strategies to tackle donor lung shortage is imperative. Pulmonary emboli (PE) are identified in >30% of rejected donor lungs, a finding associated with higher primary graft dysfunction (PGD) in transplant recipients. However, several case reports have shown that ex vivo lung perfusion (EVLP) with thrombolytic therapy can enable successful transplantation of donor lungs with PE.

Methods
The PULSE protocol was established to enable a standardized process of salvaging donor lungs with PE. It includes an adapted harvesting technique. First, retrograde perfusion via the left atrium is established. Then, antegrade perfusion via the pulmonary artery (PA) is carried out in accordance with standard harvesting protocols. This is followed by PA angioscopy to visualize and remove clots. During EVLP, 25 mg of tissue plasminogen activator (tPA) are administered if perfusion remains impaired. Donor lungs are perfused for 4 hours on EVLP. Acceptance criteria include $PaO_2/FiO_2 > 350$ mmHg, PA pressure < 15 mmHg and stable lung compliance without evidence of pulmonary edema.

Results
In the first clinical application of PULSE, DCD-lungs with pulmonary emboli identified on CT imaging were perfused on EVLP for 4 hours. Angioscopic inspection revealed a thrombus in the left lower lobe that was removed and 25 mg of tPA were administered to enhance thrombolysis. The lungs met all viability criteria and were successfully transplanted bilaterally without signs of PGD.
Two additional donor lungs have undergone evaluation using the PULSE protocol. Both were successfully transplanted and demonstrated favorable early post-transplant function

Conclusion
This initial experience demonstrates that PULSE enables safe utilization of donor lungs with significant PE that would otherwise be discarded. Broader implementation of this protocol could expand the donor lung pool, potentially reducing lung discard rates and lowering mortality for patients on transplant waitlists.

S 07

Sodium Bicarbonate and Markers of Volume Retention in Metabolic Acidosis after Kidney Transplantation - A post-hoc analysis of a randomized controlled trial

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Background
Metabolic acidosis is a common complication after kidney transplantation and is usually managed with sodium bicarbonate (SB). However, concerns about potential volume retention due to sodium loading exist. This study aimed to assess the effects of SB on markers of volume retention in kidney transplant recipients, a topic yet insufficiently studied.

Methods
This post-hoc analysis used data from the Preserve-Transplant Study, a randomized, single-blinded, placebo-controlled, multi-center trial. A total of 240 kidney transplant recipients (≥ 1 year post-transplant) with metabolic acidosis were included in the intention-to-treat population and randomized 1:1 to receive either SB (1.5–4.5 g/day) or placebo for 24 months. Primary outcomes comprised body weight, NT-proBNP, plasma renin, aldosterone, aldosterone-to-renin ratio, nocturnal systolic blood pressure (SBP) dipping, and use of antihypertensives. Secondary outcomes included incidence of hypertension, hospitalizations due to volume overload or uncontrolled hypertension, and sodium as well as potassium balance. Mixed-effects regression models were applied for statistical analysis.

Results
Weak evidence for a treatment effect of SB on body weight (BGD: 1.23 kg; $p = 0.09$), and no evidence on log-transformed NT-proBNP, plasma renin, or aldosterone-to-renin ratio was identified. Substantial evidence was detected for lower log-transformed plasma aldosterone (BGD: -0.17; $p = 0.007$). Weak evidence was observed for increased nocturnal SBP dipping (OR: 2.28; $p = 0.09$). Antihypertensive and diuretic use were similar in both groups while there was weak evidence for higher serum sodium (BGD: 0.51 mEq/L; $p = 0.02$) and strong evidence for higher log-transformed 24h sodium excretion (BGD: 0.16; $p < 0.001$). No or weak evidence was observed for other secondary outcomes. Subgroup analyses revealed no major differential effects.

Conclusions
We identified no substantial adverse effects of SB on parameters of volume retention in kidney transplant recipients. Nevertheless, targeted studies are warranted to better delineate the safety profile of SB.

S 08

Cardiovascular outcomes in solid-organ transplant recipients of the Swiss Transplant Cohort Study

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Background
Solid-organ transplantation (Tx) is the preferred treatment option for end-stage organ disease. Tx and immunosuppressive treatments are associated with an increased risk of cardiovascular disease (CVD), impacting morbidity and mortality of transplant recipients.

Methods
The Swiss Transplant Cohort Study (STCS) is a comprehensive nationwide cohort study enrolling all solid-organ transplant recipients since May 2008. Clinical data from consecutive, first-time, single-organ Tx recipients was collected until December 2019. We assessed the primary composite CVD outcome of CVD-related deaths and CVD events (coronary, cerebrovascular and peripheral artery disease).

Results
Out of the 4254 included transplant recipients, 2429 were kidney, 1022 liver, 449 lung, and 354 heart recipients. At Tx, the mean age was 53.2 (SD 13.2) and 1483 (34.9%) were women. The mean body mass index was 25.7 (SD 4.8) kg/m^2, systolic blood pressure 132.4 (SD 23.3) mmHg, LDL cholesterol 2.2 (SD 1.1) mmol/L, and 44% had never smoked. Pre-Tx CVD events were more frequent in heart recipients (51.3%) compared to kidney (30.0%), lung and liver (both 16.4%) transplant recipients ($p<0.01$). After a median follow-up of 4.2 years (interquartile range 1.9–7.5), the risk for CVD events was 15.4% (650 events) and the risk for CVD-related deaths 4.4% (188 events). The overall incidence of the composite CVD outcome was 43.3 per 1000 person-years (95% confidence interval 40.4-46.4), which was highest in heart transplant recipients over the first 2.5 years post-Tx (log rank test $p<0.001$) and was decreasing over time in all Tx groups.

Conclusions
This large contemporary Tx cohort shows that patients after Tx can be classified at very high risk for CVD events (>10% risk over 10 years by definition). The development of CVD prediction models considering the type of transplanted organ is needed to tailor cardio-preventive therapies.

S 09 ADPKD as an Independent Risk Factor for Post-Transplant Thromboembolism: Results from the STCS

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Background
Kidney transplantation (KT) improves survival, comorbidity management, and quality of life compared to long-term dialysis. Patients with autosomal dominant polycystic kidney disease (ADPKD) remain at risk for complications, including thromboembolic (TE) events, but evidence post-KT is limited. Identifying ADPKD as an independent risk factor could guide tailored screening and prophylaxis.

Methods
We conducted a multicenter cohort study nested within the Swiss Transplant Cohort Study (STCS), including adult KT recipients in Switzerland (2008–2023; n=4120: 694 ADPKD, 3426 non-ADPKD). Exclusions: age <18 years or withdrawal of consent. Primary objective: assess whether ADPKD independently increases TE risk post-KT. Secondary objectives: evaluate graft function, quality of life, graft and patient survival. Time-to-first TE event was analyzed using Cox proportional hazards models adjusted for age, sex, prior TE, nephrectomy, and donor type. Kaplan-Meier curves assessed graft and patient survival.

Results
ADPKD patients were older (57 vs 54 years, p<0.001), more often female (43% vs 34%, p<0.001), had less preexisting diabetes (6.8% vs 24%, p<0.001), and underwent pre-KT nephrectomy more frequently (41% vs 8.4%, p<0.001). Living donor KT was more common (42% vs 35%, p<0.001). Post-KT TE events were more frequent in ADPKD patients (17% vs 11%, p<0.001), while time to first TE was similar (4.8 vs 4.2 years, p=0.8). Multivariable Cox regression confirmed ADPKD as an independent TE risk factor, along with male sex, prior TE, and pre-KT nephrectomy (Figure 1).

Conclusion
ADPKD is associated with a significantly increased risk of TE events after KT, independent of other risk factors, while overall graft and patient survival are not affected. These findings support heightened perioperative vigilance, tailored screening, and consideration of prophylactic strategies. External validation of the model is underway.

S 10

Novel Urinary Biomarkers for Early Glomerular Injury: Potential for Monitoring Kidney Allograft Dysfunction and Drug Nephrotoxicity in Transplant Recipients

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Background

Kidney allograft injury and immunosuppressant-induced nephrotoxicity remain major challenges in transplant medicine, often undetected until advanced stages. Researchers are looking for early, sensitive, non-invasive tissue specific injury biomarkers independent of creatinine, albuminuria or inflammation. Building on recent proteomic studies in mouse, dog, and pediatric nephropathies, we evaluated the translational potential of urinary protein biomarkers – specifically complement 4-binding protein (C4BP), hyaluronan-binding protein 2 (HABP2), and collagen type XIII (ColXIII) – for detecting subtle renal injury due to alloimmune insult or immunosuppressant nephrotoxicity.

Methods & Results

Biomarker discovery used mass spectrometry on preclinical Alport syndrome (AS) mouse and dog models, identifying 74 candidates. Validation involved ELISA quantification of 28 candidates in urine and serum from 50 children with early AS (stages 0-I) and 104 controls, plus 19 candidates in 151 children with diverse nephropathies (e.g., obesity/hypertension/diabetes, post-infection GN, IgAV, etc.). In AS cohorts, urinary C4BP, HABP2, and ColXIII were significantly elevated across stages ($P = 0.037 \sim <0.001$), with ROC curve AUCs of 0.817~0.898 for individual markers and combinations, and independent of albuminuria and inflammation. Across broader nephropathies, these three biomarkers also elevated significantly ($P = 0.044 \sim <0.001$) and with AUCs of 0.703~0.757.

Implications

These results suggest a mechanistic link to podocyte complement activation and basement-membrane/endothelial injury, conserved across multiple species and nephropathies. Such pathological processes are also relevant in transplant injury and its associated nephrotoxic damage. We propose that urinary measurement of ColXIII, HABP2 and C4BP may serve as non-invasive, early-stage indicator for monitoring kidney injury in transplant recipients – whether resulting from calcineurin or mTOR inhibitor nephrotoxicity, sub-clinical alloimmune microcirculatory damage, or even xenograft injury.

Conclusions

These findings warrant prospective evaluation of these urinary biomarkers in transplant recipients. They may fill a key gap in early kidney injury detection, allowing timely therapeutic modification and improving graft outcomes.

POSTER PRESENTATIONS

P 01 Liver Transplantation or Hepatic Arterial Infusion for Unresectable Colorectal Liver Metastases – A Meta-Analysis of Reconstructed Single-arm Survival Data

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Aims and Objectives
Colorectal cancer ranks as the third most common malignancy worldwide, with approximately 20% of patients developing unresectable colorectal liver metastasis (uCRLM) within 5 years of diagnosis. We aimed to synthesize overall survival (OS) after hepatic artery infusion (HAI), HAI combined with systemic therapy (HAI+S), and liver transplantation (LT) to provide a preliminary comparison of emerging therapies.

Materials and Methods
Nine databases were screened from their inceptions to June 2024, including retrospective and prospective cohorts investigating patients with uCRLM who underwent HAI, HAI+S or LT, excluding patients with extrahepatic metastases at baseline. Using reconstructed individual patient survival data, we performed a one-stage meta-analysis. We used the Kaplan-Meier method and restricted mean survival time (RMST) to estimate survival differences and Cox proportional hazard modeling to assess relative risk.

Results
Of 5462 studies screened, 68 publications with 3341 patients were included. Of these, 205 patients in 8 studies received LT, 2000 patients in 36 studies received HAI, and 1116 patients in 27 studies received HAI+S. Pooled OS rates were highest in the LT arm (91.2%/68.8%/53.7% at 1, 3, and 5 years), followed by HAI+S (83.8%/39.3%/24.6%) and HAI alone (73.5%/22.7%/7.3%). RMST analysis at 5-years indicated LT was associated with living 11.7 months longer than those receiving HAI+S and 20.4 months longer than HAI alone. Cox model demonstrated that LT was associated with lower risk of mortality than HAI (hazard ratio (HR):0.26; 95%CI:0.21,0.32; p<0.001) and HAI+S (HR:0.43; 95%CI:0.35,0.54; p<0.001). Statistical significance was maintained in two sensitivity analyses investigating studies published >2016 (LT vs. HAI, HR:0.29; 95%CI:0.22,0.39; p<0.001; LT vs. HAI+S HR:0.54; 95%CI:0.43,0.68; p<0.001) and comparing LT to HAI + modern targeted therapies (HR:0.64; 95%CI:0.48,0.80; p=0.0017).

Conclusions
LT demonstrates promising results in selected patients with uCRLM when compared to HAI and HAI with systemic therapy.

P 02 Association between Recipient–Donor Sex Combinations and Post-Transplant Infections: A Swiss Transplant Cohort Study

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Aims and Objectives
Despite increasing interest in sex and gender in transplant medicine, the impact of recipient-donor sex combinations (RDSC) on post-transplant infections, graft survival, and rejection remains unclear.

Materials and Methods
Adult single organ transplant recipients with the Swiss Transplant Cohort Study having undergone transplantation between May 1st 2008 to December 31st 2021, with follow up to December 6th 2024 were included. The primary endpoint was a clinically relevant infectious disease event. Associations between RDSC and infectious events, graft survival, and rejection within the first year after solid organ transplantation (SOT) were assessed. Organ specific a priori stabilized weights were computed to adjust for confounders. Sensitivity analyses for organ, pathogen, and infection site were performed.

Results
We included 5,033 recipients: 2,886 (57.3%) kidney, 1,224 (24.3%) liver, 515 (10.2%) lung, and 408 (8.1%) heart transplants, documenting 6,067 infections. Recipient-donor sex mismatch was not associated with weighted post-transplant infection risk in heart (incidence rate ratio [IRR] 1.06; 95%CI:0.75,1.48; p=0.75), kidney (IRR 1.03; 95%CI:0.90,1.17; p=0.69), liver (IRR 1.10; 95%CI:0.81,1.50; p=0.52), or lung (IRR 1.02; 95%CI:0.82,1.26; p=0.89) recipients. Female kidney recipients had significantly higher infection rates than males (IRR 1.50; 95%CI:1.32,1.71; p<0.001), largely explained by urinary tract infections. One-year graft survival and rejection were not significantly different by RDSC across all organs.

Conclusions
These findings indicate that RDSC does not influence short-term SOT outcome, with infections as the primary endpoint and rejection, overall and graft survival as exploratory outcomes. Appropriately, RDSC is not considered in current organ allocation practices.

P 03 Risk factor analysis for early and late invasive Candida infections in solid organ transplant recipients

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Background
Contemporary data on risk factors for invasive candidiasis (IC) in solid organ transplant recipients (SOTr) are rare.

Methods
This follow-up study on a large multicenter cohort study, nested within the Swiss Transplant Cohort Study, identifies risk factors for IC during the first year posttransplant.

Results
Among 4755 and 4519 SOTr identified between 0-3 months (early) and 4-12 months (late) posttransplant, 90 (1.9%) and 48 (1.1%) had 109 and 50 episodes of IC, respectively. *Candida* colonization (HR:3.2; 95%CI:1.67,6.14; p<0.001), posttransplant anastomosis complications (HR:3.14; 95%CI:1.74,5.69; p<0.001), and bleeding/vascular complications (HR:3.66; 95%CI:2.38,5.62; p<0.001) were independent risk factors for early IC, while transplantation between 2015-2020 (HR:0.57; 95%CI:0.38,0.88, p=0.011) and male sex (HR:0.63; 95%CI:0.59,0.88; p=0.026) demonstrated lower risk for early IC in all transplant types. Systemic antifungal prophylaxis (HR:30.9; 95%CI:4.9,194; p_{adj}=0.003) was associated with increased risk of early IC in kidney/kidney-pancreas recipients. Posttransplant anastomosis (HR:4.39; 95%CI:2.49,7.72; p_{adj}<0.001) and surgical site/surgical other complications (HR:3.62; 95%CI:2.03,6.46; p_{adj}<0.001) were independent risk factors for late IC in the overall population.

Conclusion
In conclusion, this study highlights the impact of *Candida* colonization and posttransplant surgical complications on the occurrence of IC. These findings can support the design of more effective prophylactic strategies and inform clinical practice in this vulnerable patient population.

P 04 Expanding the horizons of lung preservation: two-year experience with controlled hypothermic storage

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Aims and Objectives
Lung transplantation (LTx) is the definitive treatment for end-stage lung disease. Optimal lung preservation is essential for favorable post-transplant outcomes. Controlled hypothermic storage (CHS) has emerged as a promising strategy, allowing ischemic times to be safely extended beyond 15h. This study reports a two-year experience with CHS in a high-volume LTx program.

Materials and Methods
We conducted a retrospective observational analysis of all consecutive LTx procedures performed with CHS between 11/2022 and 12/2024 in asingle-center. The LUNGguard device (4°C-8°C) was used for CHS. Donor and preservation characteristics, ischemic times, and early postoperative outcomes were evaluated. Data are reported as median (range).

Results
Forty-two patients underwent CHS-preserved LTx (38 bilateral, 2 single, 2 lobar). Donor age was 59 (46-70) years; 38% were donation after circulatory death. Recipient age was 61 (53–64) years; 21% had high-urgency status. CHS indications were overnight bridging (n=32), logistics (n=6), rescue allocation (n=2), and extended-criteria donors (n=2). Storage temperature was 6.5°C (4°C-9.3°C). Preservation times were 12h45 (02h42-17h09) and 15h49 (04h20-20h26) for the first and second implanted lung, respectively, with corresponding total ischemic times of 15h33 (05h15-19h44) and 18h43 (07h02-22h59). Primary graft dysfunction grade 3 at 72h was 9.5%. Intensive care unit stay was 9 (4-164) days, and hospital stay 30 (16-219) days. Extracorporeal membrane oxygenation (ECMO) support was required perioperatively in 36%. One patient died on postoperative day 7 due to ECMO failure. In-hospital Clavien-Dindo complications of 3b occurred in 17 (40.5%) patients and 4a in 4 (9.5%).

Conclusions
CHS by LUNGguard appears to be a safe and effective preservation strategy, supporting extended ischemic times without compromising early LTx outcomes. By providing logistical flexibility, CHS may increase donor utilization, enable longer transport distances, and optimize surgical scheduling, ultimately expanding the donor pool for LTx.

P 05 Microvascular inflammation is influenced by the KIR peripheral repertoire and CMV infection in kidney transplanted patients

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Microvascular inflammation (MVI), defined by the presence of glomerulitis and peritubular capillaritis in kidney graft biopsies, is associated with alarming kidney transplantation outcomes. MVI, classically mediated by Donor specific antibodies (DSA), is the pivotal feature of antibody-mediated rejection. Specific mechanisms involving NK cells and missing self (MS) appear to be seminal actors in isolated MVI (C4d-DSA-). Besides, the role of CMV infection in MVI remains to be clarified.
In this study, we analysed a cohort of 63 kidney transplanted patients, 38 patients with MVI and 25 controls. DSA were present in 44.7% of MVI patients vs 15.4% in controls ($p<0.0001$). Genetic MS, determined by high resolution KIR sequencing, was present in 76.7% of MVI patients vs 56% in controls ($p=0.01$). 74% of patients with CMV infection displayed MVI, whereas 52.5% of patients without CMV infection displayed MVI ($p=0.03$). All patients with CMV primoinfection displayed MVI, whereas only 50% of negative recipient displayed MVI ($p<0.0001$), and none of them displayed late MVI. Flow cytometry analysis of circulating NK cells on the day of transplantation (T0) and one year after transplantation (T12) showed that specific cell subsets expressing KIR3DL1 and KIR2DL2L3 were associated with MVI. KIR2DL2L3-expressing NK cells were increased at T0 and T12 in MVI patients, compared to controls ($p=0.003$, and $p=0.015$, respectively). High KIR3DL1-expressing NK cells were increased at T0 in MVI patients compared to controls ($p=0.03$). CMV serostatus was associated with specific CD57+ NKG2C+ NK cells subsets. CD57+KIR2DL2L3+ NK cells subsets expansion was a common variation between CMV seropositivity and MVI.
Our data may suggest that KIR repertoire with increased KIR2DL2L3 NK cells expression pave the way for MVI after kidney transplantation. Subsequent NK cells subsets changes due to CMV seropositivity or seroconversion amplify MVI by the increase of mature cytotoxic NK cells.

P 06 Lipoprotein(a) in solid-organ transplant recipients of the Swiss Transplant Cohort Study

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Background
Cardiovascular diseases (CVD) occur more frequently in solid-organ transplant (Tx) recipients than in the general population. High lipoprotein(a) [Lp(a)] levels, a genetically-determined causal CVD risk factor, remain insufficiently studied in Tx recipients.

Methods
The Swiss Transplant Cohort Study (STCS) is a nationwide cohort enrolling all Tx recipients since May 2008. Clinical and biochemical data were prospectively collected until December 2019 from consecutive, first-time, single-organ Tx recipients. In a subset of patients at 2 sites (Lausanne and Geneva), pre-Tx Lp(a) levels and apo(a) isoforms were determined by ELISA and Western blot. In liver recipients, these measurements were repeated one year post-Tx.

Results
Pre-Tx Lp(a) levels and apo(a) isoforms were determined in 982 Tx recipients (81 heart, 136 lung, 241 liver and 524 kidney). Mean age at Tx was 53.1 (SD 13.3); 334 (34%) were women. Median pre-Tx Lp(a) level was 9.94 mg/dL (range 0.02-290.05) overall. Pre-Tx Lp(a) levels were lowest in liver recipients [1.93 mg/dL (0.02-135.62)], compared to heart [12.33 mg/dl (0.75-191.39)], lung [11.61 mg/dl (0.31-216.50)], and kidney [17.88 mg/dl (0.09-290.05)] ($p<0.001$). Low molecular weight (LMW) apo(a) isoforms (i.e. at least one isoform with <23 kringle IV repeats) were more frequent in liver (32.0%) than in heart (22.5%), lung (20.4%) and kidney (19.8%) recipients ($p<0.01$). One year after liver Tx, median Lp(a) levels rose to 8.29 mg/dL (0.08-142.50), with a median increase of 4.85 mg/dL (-77.79; 141.27) ($p<0.001$). Apo(a) isoform weight changed in 74 (40.7%) liver recipients, shifting to LMW in 29 and to high molecular weight in 45 patients.

Conclusions
Pre-Tx Lp(a) levels were lowest in liver recipients. One year post-liver Tx, Lp(a) increased, reflecting acquisition of donor Lp(a) isoforms and improved liver function. Further studies should assess Lp(a) as a cardiovascular risk biomarker in the Tx population.

P 07 Additional benefit of sequential Hypothermic Oxygenated Perfusion after Normothermic Regional Perfusion on biliary complications

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Background
Normothermic regional perfusion (NRP) mitigates ischemic injury in donation after circulatory death (DCD) liver transplantation. The additional benefit of sequential NRP and hypothermic oxygenated perfusion (HOPE) in reducing biliary complications remains uncertain.

Material and methods
We analyzed 53 DCD liver transplants performed after NRP across Swiss and Italian transplant centers. Grafts were either preserved with end-ischemic HOPE (n=37) or static cold storage (n=16) after procurement. The primary outcome was the incidence of biliary complications; secondary outcomes included graft survival and vascular events. Kaplan-Meier and logistic regression analyses were performed.

Results
Biliary complications occurred in 9.4% of patients overall, with a similar incidence in the HOPE group (8.1%) versus no-HOPE (12.6%, p=0.5). The one-year graft loss (5.4% vs. 6.3%) and re-transplantation (2.7% vs. 6.3%) rates were similar in the HOPE group. Hepatic artery thrombosis occurred less frequently with HOPE (2.7% vs. 13%, p=0.2). In multivariable analysis, HOPE was not associated with a reduction in the odds of biliary complications (OR 0.46, 95% CI 0.05–4.38, p=0.5). Functional warm ischemia time approached significance (OR 1.24, 95% CI 1.02–1.61, p=0.056). Kaplan-Meier analysis confirmed comparable biliary complication-free survival between groups (p=0.6).

Conclusion
Sequential HOPE following NRP resulted in a similar frequency of biliary and vascular complications in DCD liver transplantation. Given the small size of the cohort no definitive conclusion can be drawn, nevertheless our results could inform the design of larger trials. Larger prospective studies are needed to clarify the benefit of combined machine perfusion strategies.

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