Equally interchangeable?
How sex and gender affect transplantation

Biomedical and Socio-cultural Aspects in Transplantation
- Facts and Myths -
International Workshop
March 7-8, 2018
Dear colleagues

We invite you to join us for an interactive workshop on sex- and gender-specific issues in transplantation as important, but potentially under-recognized factors determining patient and transplant outcomes.

In 2015 the National Institute of Health (NIH) launched a notice stating the expectation that “sex as a biological variable will be factored into research designs, analyses, and reporting in vertebrate animal and human studies.” The recognition of potential differences and their impact for science has been an important step forward. It reinforces the establishment of still mostly unavailable but necessary scientific insights. While the NIH motivates researchers to consider sex, it also acknowledges the importance of gender for health and disease processes. Sex refers to the biological and physiological differences; gender is seen as a social concept. Nevertheless, both are interrelated and potentially inseparable.

Our workshop starts by providing epidemiological findings on access and outcome in transplantation, followed by evaluating underlying and causative factors for potential differences. We discuss not only how to implement sex/gender in basic and clinical research proposals, but also how to translate generated evidence into guidelines and policies. Throughout the workshop we take a sex- and gender-based perspective, being aware that many times we may discuss sex rather than gender due to data limitations.

We look forward to presenting a comprehensive overview of the current evidence that intends to dispel existing myths on sex- and gender-specific questions in transplantation. Finally, we expect to identify areas where more basic and/or clinical research is needed.
March 7th, 2018

12:00  Greetings
Sabine Johannsen
State Secretary, Ministry of Science
and Culture of Lower Saxony
Christopher Baum
President, Hannover Medical School

12:30  Facts and myths on sex and gender in transplantation
Interactive session (EDU Vote)
Anette Melk and Christine Falk
Hannover, Germany

Session I  Epidemiological Facts
Chairs: David Gjertson, Los Angeles
Bernhard Schmidt, Hannover

13:15  Eurotransplant registry data
Undine Samuel
Leiden, Netherlands

13:45  UNOS registry data
David Gjertson
Los Angeles, USA

14:15  Coffee break

14:45  ANZDATA
Anette Melk
Hannover, Germany

15:00  Claims data
Siegfried Geyer
Hannover, Germany
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<td>solid organ transplantation</td>
<td>Anne Dipchand</td>
<td>Toronto, Canada</td>
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<td>15:45</td>
<td>Lung</td>
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<td>Mark Greer</td>
<td>Hannover, Germany</td>
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<td>16:30</td>
<td>Kidney</td>
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<td>Marion Haubitz</td>
<td>Fulda, Germany</td>
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<td>17:00</td>
<td>Liver</td>
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<td>Marina Berenguer</td>
<td>Valencia, Spain</td>
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<td>17:30</td>
<td>Stem cell</td>
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<td>Hans Messner</td>
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Session III  Immunological Aspects

Chairs:  Lori West, Edmonton  
         Christine Falk, Hannover

09:00  HLA antibodies and more  
       Frans Claas  
       Leiden, Netherlands

09:30  The Impact of Sex on Alloimmunity  
       Ashley Lau  
       Boston, USA

10:00  Coffee break

Session VI  Implementing Sex/Gender in  
Research and Policies

Chairs:  Birgit Babitsch, Osnabrück  
         Siegfried Geyer, Hannover

10:30  How to address sex/gender in basic and  
       clinical research  
       Lori West  
       Edmonton, Canada

11:00  Oral presentations from selected abstracts

Survival after heart, lung and combined heart-lung transplantation under gender specific view using Eurotransplant data bank  
Sandra Ellert, Munich

Gender has no impact on the occurrence of posttransplant encephalopathy after liver transplantation  
Meike Diks, Hannover

Risk Factors for Arterial Hypertension in Pediatric Renal Transplant Recipients Depend on Pubertal Status and Sex: A Longitudinal Analysis of the CERTAIN Registry  
Bernhard M.W. Schmidt, Hannover
Oral presentations from selected abstracts

Prevalence of gingivitis and periodontitis in renal transplant recipients
Jasmin Grischke, Hannover

Impact of Emotion Regulation and Emotional Arousal on Quality of Life and Adherence of Couples after Kidney Transplantation
Luisa Peters, Hannover

Sex differences in subclinical cardiovascular organ damage in renal transplant recipients
Bianca Borchert-Mörlins, Hannover

12:00 Lunch break with Poster session
(in cooperation with IFB-Tx investigators)

14:00 Gender differences at the microlevel
Tanja Zimmermann
Hannover, Germany

14:30 Policy conclusions
Birgit Babitsch
Osnabrück, Germany

15:00 Final remarks
Anette Melk and Christine Falk
Hannover, Germany

15:30 Coffee break

16:00 IFB-Tx Symposium
Perspectives in Transplantation
### Short biographies

*(in alphabetical order)*

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<td>Functional Lung MRI for early detection of chronic lung rejection and pulmonary graft-versus-host disease due to Bronchiolitis Obliterans Syndrome (BOS)</td>
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| **FIB_2** |
| Wintterle Getzin |
| Risk factor evaluation for inferior outcome after kidney transplantation by assessment of renal pathophysiology with functional MRI in correlation with molecular markers |

| **CORE_1** |
| Melk Schmidt Beutel |
| Cardiovascular disease after transplantation – causes and prevention |

| **CORE_2** |
| Manns Klempnauer Weden Meyer von Hahn |
| Prevention and treatment of hepatitis virus infections in liver transplant recipients |

| **CORE_3** |
| Weißenborn |
| Chronic neurotoxicity of calcineurin inhibitors in patients after liver transplantation |

| **CORE_4** |
| Hartmann Müller Wulf |
| Opportunities for life in paediatric organ transplant recipients |

| **CORE_6** |
| Haufe |
| Daily physical activity at pulse pressure above an individual threshold in patients with continuous flow left ventricular assist devices – a feasibility study |

| **CORE_7** |
| Schröder-Heurich |
| The role of endothelial progenitor cells in the pathophysiology of cardiovascular disease after transplantation |

| **CORE_8** |
| Heidrich Lenzen Solbach |
| Biliary microbiota and its role in ischemic type biliary lesion (ITBL) in patients after liver transplantation |

| **CORE_9** |
| Pflugrad |
| Chronic neurotoxicity of calcineurin inhibitors in patients after kidney transplantation |

| **CORE_10** |
| Glahn |
| The leptin-hypothalamus-liver axis in ethanol-induced liver cirrhosis - changes through transplantation and possible link to relapse |

| **CORE_11** |
| Bertram |
| Introduction and testing of a medication event monitoring system (MEMS) in kidney transplant patients |

| **CORE_12** |
| Deniz |
| INNOCOR as VAD Therapy Optimization |

### Students

**KlinikStrucMed** |
- Franke: Dyadic impact on adherence after renal transplantation

**KlinikStrucMed** |
- Goede: Neurotoxic side effects of calcineurin inhibitors (CNI) in patients after liver transplantation: a quantitative MRI study

### Core Facilities

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Birgit Babitsch

Birgit Babitsch is Professor of New Public Health at the Institute for Health Research and Education at the Osnabrück University. She graduated in social science, public health as well as management of health and social institutions. Currently, she is the institute’s director and dean of studies.

Her main research interests are social determinants of health, inequalities and health, public health implementation, diversity in health service research and child and youth health. Current research projects are dealing with the adoption of the capability approach in public health, safety culture in health care facilities, competence development of health care professionals and health as well as health care of young people with disabilities.

She conducted several national and international research projects in her research fields applying a multi-methods approach. Furthermore, she was also engaged in implementing gender aspects into the public health and medical curriculum as well as one of the first into clinical practice guidelines. She has been publishing several articles covering the field of social inequality, capacity building, gender/diversity in health as well as health and health services.

Dr. Babitsch is one of the investigators of a collaborative project between Hannover Medical School and the University Osnabrück that addresses known and potentially only assumed differences between female and male renal transplant patients. Her sub-project deals with the evaluation of current guidelines as well as the description of requirements on and the translation of gender-specific guidelines in renal transplantation. The project is funded within the program “Geschlecht-Macht-Wissen” by the Ministry of Science and Culture of Lower Saxony.

### Poster from IFB-Tx Investigators

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<td>Immune monitoring accompanying the prospective, multi-center, randomized clinical investigation of TransMedics® Organ Care SystemTM (OCS) for lung preservation and transplantation</td>
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<td>OPEX_4</td>
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<td>Development of novel cellular immune intervention strategies in allogeneic stem cell transplantation based on the isolation and expansion of donor regulatory T cells</td>
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<td>ISI_3</td>
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<td>Monitoring of EBV-specific immunity and humoral milieu factors as early markers for PTLD development in EBV positive high-risk pediatric SOT patients</td>
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P5. Gender and Sex at MHH in a nutshell

Dr. phil. Bärbel Miemietz, M.A., Gender Equality Officer, Hannover Medical School, Hannover, Germany

In 2006, MHH’s Gender Equality Officer secured funds from the Lower Saxony Ministry of Science (MWK) for a status survey on the gender perspective in research and teaching. In 2008 started a collaborative project called ‘Inclusion of Gender-Related Content in the Hannibal Model Curriculum’. The funds were used in part for curriculum development and partially for a series of workshops held in cooperation with numerous MHH departments. In December 2009 MHH’s ‘Centre of Excellence for Gender-Sensitive Medicine’, was initiated whose goals include establishing a gender-specific approach as a quality criterion in medicine and setting up and expanding a network for gender-sensitive teaching, research, patient care and continuing education. Conferences on sex and gender in medicine were held in 2010 and 2011, a new series of workshops on ‘Gender and Diversity – Fresh Momentum in Medicine’ launched in 2013. From 2013, MHH specifically incorporated the issue of gender-sensitive research into its annual survey for its Research Report. In the Gender Equality Plan for 2013, MHH committed to a gender-sensitive approach in research, teaching and patient care. In 2015–2018, a project entitled ‘Gender – Power – Knowledge in Transplantation: From Myth to Biomedical Reality, Taking Kidney Transplants as an Example’ funded by the MWK was implemented. In July 2017, MHH applied again to the MWK for funding of a W3 professorship in Interdisciplinary Transplant Medicine with a Focus on Gender Research.

Marina Berenguer

Marina Berenguer is a Consultant Hepatologist at La Fe University Hospital in Valencia, Spain and Professor of Medicine at the University of Valencia. She trained in medicine at the University of Valencia before completing a fellowship at the VA Medical Center / University of California (USA) with Dr. T. Wright.

She is well recognized for her important contributions in the field of post-transplantation HCV liver disease. She was involved in the creation of various consensus documents on viral hepatitis and liver disease, and she is an active committee member for several national and international hepatology and liver transplantation societies. Since its creation in 2006, she has also coordinated research within a national research network in hepatology-gastroenterology (‘Centro de Investigación Biomédica en Red en Enfermedades Hepáticas y Digestivas’, CIBERehd).

Prof. Berenguer served as Associate Editor for the Journal of Hepatology and Liver Transplantation until December 2014 and is now Deputy Editor for Transplantation. She has authored more than 300 publications in peer-reviewed journals as well as over 70 chapters in international and national textbooks.
Frans H. J. Claas

Frans Claas is director of the Eurotransplant Reference Laboratory and Professor of Immunogenetics of Transplantation at the Leiden University Medical Center in Leiden, the Netherlands. The main topics of his current research are the differential immunogenicity of HLA mismatches in clinical transplantation and the immunology of pregnancy as a model for transplantation tolerance. The studies of his research group have generated more than 500 papers in peer-reviewed journals. He was the initiator of a special program within Eurotransplant to enhance transplantation of highly sensitized renal transplant patients on basis of acceptable HLA mismatches.

Dr. Claas is an active member of different professional societies as reflected amongst others by his past-presidency of the European Federation for Immunogenetics (EFI) and past-membership of the Board of the American Society for Histocompatibility and Immunogenetics (ASHI). He is an editor-in-chief of Transplant Immunology.

P4. Adaptive Personality Traits and Psychosocial Correlates among Living Kidney Donors

Iris Pollmann1, Falkah Gueler2, Marie Mikuteit1,2,3, Mariel Nöhre1, Nicolas Richter4, Karin Weissenborn3 and Martina de Zwaan1; 1Department of Psychosomatic Medicine and Psychotherapy, Hannover Medical School, Hannover, Germany; 2Department of Nephrology, Hannover Medical School, Hannover, Germany; 3Department of Neurology, Hannover Medical School, Hannover, Germany; 4Department of Surgery, Hannover Medical School, Hannover, Germany

Since living kidney donors have repeatedly been shown to be mentally more healthy compared to the general population, they might also exhibit more adaptive personality characteristics. We investigated the personality traits of 315 living kidney donors (202 female and 113 male donors) on average 7.1 years after donation using the NEO-Five Factor Inventory, a frequently used personality inventory measuring the “big five” dimensions of personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness). In addition, levels of depression, anxiety, and fatigue were assessed with the Patient Health Questionnaire-Depression Scale, GAD-7, and Multidimensional Fatigue Inventory. Kidney donors showed more adaptive personality traits with higher agreeableness and lower neuroticism scores compared to the German general population. This was even more pronounced in living kidney donors with a high motivation to donate again (non-regreters). Scores for depression, anxiety, and fatigue did not differ from general population values and were significantly correlated with most personality dimensions. The more adaptive personality characteristics of living kidney donors might either be a selection effect or the consequence of the experience of donation and improved health of the close relative. Regardless of the causal relationship, adaptive personality traits might positively influence both physical and psychosocial well-being of the donor. Longitudinal studies should investigate if living donation might lead to persistent adaptive changes in personality traits.
P3. Virus-specific T cells from third party T cell donors

Britta Maecker-Kolhoff, Sabine Tischer, Hans-Gert Heuft, Lilia Goudeva, Jörg Martens, Susann Placzko, Murielle Verboom, Lubomir Arseniev, Christoph Priesner, Ulrike Köhl, Rainer Blasczyk, Britta Eiz-Vesper; Institute for Transfusion Medicine, Hannover Medical School, Germany; Department of Pediatric Hematology and Oncology, Hannover Medical School, Germany; Institute for Cellular Therapeutics, Hannover Medical School, Germany; Integrated Research and Treatment Center (IFB-Tx), Hannover Medical School, Germany

Background. Intensive immunosuppressive therapy for prevention of graft rejection and graft-versus-host disease (GvHD) and for treatment of GvHD puts the patients before and after hematopoietic stem cell transplantation (HSCT) or solid organ transplantation (SOT) at risk of opportunistic infections due to an ablated or severely compromised T-cell immune response. Among those, infection with and reactivation of endogenous herpes viruses like cytomegalovirus (CMV), Epstein-Barr virus (EBV), human herpesvirus 6 (HHV6), lytic agents such as adenovirus (ADV) as well as polyoma virus BK (BKV) are frequent and severe complications and associated with significant morbidity and mortality. The shortcomings of conventional therapies have increased the interest in antiviral T-cell transfer. The efficacy and the clinical outcome in high risk patients can be improved by a rapid recruitment of a suitable T-cell donor and an established method for fast manufacturing of antiviral T cells. There has been no data on differences between female and male donors.

Materials and Methods. To facilitate and accelerate donor recruitment a registry (alloCELL) for unrelated donors was established. The registry currently records >2000 HLA-typed donors extensively screened for their antiviral T-cell repertoire. The alloCELL lab further established comprehensive protocols to consider clinical requirements of patients at high risk for viral infections or with failed conventional therapy. The manufacturing license was obtained for generating clinical-grade mono- and multivirus-specific T-cell products according to the German Medicinal Products Act using the IFN-γ Cytokine Capture System and CilimiMACS Prodigy device. T-cell donors were defined as eligible if ≥0.03% specific IFN-γ+ T cells are detectable.

Results. Antiviral T-cell frequencies in third party alloCELL donors were determined routinely by ELISPOT and multimer staining. We observed highly significant individual and overall differences in T-cell frequencies against CMV, EBV, ADV, BKV, HHV6 and Aspergillus antigens. Antiviral T-cell frequencies, availability and willingness of the donors are currently analyzed with respect to sex and age of donors.

Conclusion. Our data support clinical safety and efficacy of third-party antiviral T cells. Since the success of antiviral T-cell transfer benefits from (i) accurate monitoring of viral load and antiviral T-cell frequencies in patients, (ii) early and fast selection and availability of suitable T-cell donors, it is important to further elucidate whether sex differences play a role in T-cell frequencies and availability of donors.
Christine Falk is the head of the Institute of Transplant Immunology at MHH. Her research focuses on immunological alterations in the course of solid organ transplantation, lung, kidney and liver, during ischemia/reperfusion injury, in particular. Coming from the tumor field at the German Cancer Research Center in Heidelberg, she sees tumor and transplant immunology as two sides of the same coin – on one hand, we can learn from solid tumors how they protect themselves from immune recognition and rejection. On the other hand, we can learn from transplanted organs what it takes to reject allografted tissue. In both situations, there are common denominators of rejection, i.e. specialized innate and adaptive immune cells and the cytokine / chemokine network, which orchestrate immune responses and thus, provide candidates for therapeutic targets. The group of C. Falk has established an immunomics portfolio for immune monitoring of solid organ transplant recipients comprising flow cytometry panels for T, B, NK and myeloid cell subsets, cytokine and chemokine protein multiplex assays, functional immune assays like ELISpot and expression profiling as well as advanced statistics for heat map, PCA and KNN network analyses using the Qlucore Omics software. In the context of the INSPIRE trial comparing standard of care cold static perfusion (SOC) with normothermic oxygenated ex vivo lung perfusion (Organ care system, OCS), we could demonstrate that recipients of OCS-preserved lungs show significantly lower ischemia/reperfusion injury compared to recipients of SOC-preserved lungs. At present, the group is investigating underlying mechanisms for this suppression of inflammation via ex vivo perfusion. In addition, the effects of sex and gender in this specialized lung transplant setting are currently investigated based on the existing data sets. Dr. Falk is one of the investigators of a collaborative project between Hannover Medical School and the University Osnabrück that addresses known and potentially only assumed differences between female and male renal transplant patients. Her sub-project deals with sex-specific immunological differences with a special focus on differences in antibody frequency and significance. The project is funded within the program “Geschlecht-Macht-Wissen” by the Ministry of Science and Culture of Lower Saxony.

Christiane Gleissner: Department of Restorative Dentistry, University Medical Center, Johannes Gutenberg University Mainz

Patients who have undergone organ transplantation can develop a variety of oral lesions that are either related to their medication or due to drug-induced immunosuppression. Frequently diagnosed lesions are gingival hyperplasia, hairy leukoplakia, viral and fungal infections and a high incidence of malignant change, especially lip cancer. Increasingly, cases of post-transplant lymphoproliferative disorder in the oral cavity were recently described. Although several studies reported that the prevalence of these lesions is different for men and women, a systematic analysis of the literature as to how sex and gender influences etiology, clinical symptoms and therapy of these lesions has not been performed.

This study therefore aimed to examine and evaluate the gender sensitivity of the available literature in order to present the current status of the sex/gender specific knowledge in this field, and to point out gaps in knowledge. A recently introduced index was used as the evaluation tool, with the aid of which can be quantitatively assessed if a scientific publication includes sex/gender as a research category.

The analyses confirm data from previous studies of dental publications. Only a small percentage of the studies presented sex/gender stratified data or sex/gender specific recommendations. Most publications covered sex/gender specific aspects in epidemiology. Studies on etiology and therapy rarely included sex/gender as influencing factors. Overall, the basis of the results found is too thin to derive evidence-based recommendations. There is a need for research, especially in the fields of etiology and therapy.
Male and female patients in many diseases—present with different symptoms, gain frequently no gender-sensible diagnostics and get offered inappropriate therapeutic options. To have knowledge of and obey sex and gender differences in transplant medicine, specifically in the area of diagnostics and consecutively treatment, would personalize treatment and increase quality of health care.

Several mechanisms by which donor/recipient sex mismatch might affect outcomes in transplantation have been identified, including hormonal differences, chromosome differences, and antigen development. There is a certain amount of innovative gender-sensible approaches in transplant medicine. Women experience gendered exposure to several risk factors. Outcomes may be inequitable, because women do not receive the care they require for these gendered exposures.

In women, especially pregnancies/reproductive history and related complications play a major role and lead to a specific onset of symptoms among women. Pregnancy is a multi-dimensional condition; pregnant women become ill, and transplanted women may get pregnant. Their bodies are undergoing massive hormonal and immunologic changes. Despite organic factors, immunologic equipment and immunologic recognition of men and women may be highly important. Parallel to organ transplantation, during pregnancy, distinct mechanisms are responsible, why the mother does not reject the “foreign” fetus. These mechanisms include fetal as well as local maternal factors. Specifically, persisting fetal cells in the maternal circulation (defined as chronic microchimerism) may have implications on the development of autoimmune diseases.

In organ transplantation, it is highly useful to have knowledge in local physiological immunotolerance to develop new therapeutic strategies not necessarily requiring systemic immunosuppression. Understanding the regulatory immunologic responses in pregnancy including the invading allogeneic fetus-derived trophoblast cells into the decidua may lead to new therapeutic concepts in organ transplantation. Further investigations in transplant immunology under gender-specific view are needed.

Therefore, gender lenses tools as methodological techniques developed by Canadian colleagues are needed. The gender lens tool is constructed to complete medical knowledge to improve health outcomes at the population level. Its goal consists of its application to clinical and biomedical research.

Johnson et al. developed several options to enable researchers to use sex and gender-based analysis (SGBA) at various stages of the research process.

In the era of individualized medicine, existing medical health care inequalities have to be addressed; putting gender on the agenda shall become the goal of clinical and biomedical transplant research.
David W. Gjertson is Professor of Biostatistics & Pathology at the Department of Biostatistics, University of California, Los Angeles. His research focuses on statistical issues related to two main topics - organ transplantation and DNA identification. In the transplantation arena, he has assisted in the investigation of novel organ allocation schemes which promise equitable allocation of scarce compatible kidneys even for small pools and for minority patients. His research has also centered on elucidating (via standard and Bayesian methodologies) the factors most strongly influencing long-term graft survival and predicting chronic organ failure. With regard to DNA identification, he has been able to follow-up his thesis research (concerning sex differences with regard to patient and transplant outcome.

For many years, Dr. Gjertson has been responsible - in close cooperation with Dr. Terasaki and Dr. Cecka - for the scientific analysis of the renal registry data from the United Network of Organ Sharing (UNOS). During his lecture at the workshop, he will give an overview on data from the UNOS registry that shed light on the importance of sex differences with regard to patient and transplant outcome.

V6. Sex differences in subclinical cardiovascular organ damage in renal transplant recipients

Bianca Borchert-Mörlins¹, Tabea Stoklassa¹, Nima Memaran¹, Elena Bauer¹, Sabrina Baig¹, Anette Melk¹, Bernhard M.W. Schmidt¹, Department of Ped. Kidney, Liver and Metabolic Diseases, Hannover Medical School, Hannover, Germany; 2Department of Nephrology, Hannover Medical School, Hannover, Germany.

Background. Cardiovascular (CV) disease is the leading cause of death in adults following renal transplantation (RT). Sex-specific differences of the pathophysiology, clinical presentation and outcome of CV disease in the general population are well described. The aim of this study was to evaluate differences in the prevalence of subclinical CV organ damage and contributing risk factors between females and males at the time of RT and during follow up. Methods. In a single center longitudinal study we enrolled 121 adults [male 64 %, age 51±15 years] at time of RT. Anthropometric data, laboratory values and office blood pressure were evaluated at baseline and after one year. Subclinical CV organ damage was determined through non-invasive measurements of aortic pulse wave velocity (PWV), carotid intima media thickness (IMT) and left ventricular mass index (LVMI). Results. At baseline, obesity (based on increased BMI) was detected in 28 % of female and in 13 % of male patients (p=0.02). No sex-difference was detected in the prevalence of hypertension (HTN) [females: 77 %; males: 78 %]. CV organ damage was highly prevalent at baseline (Table 1) with no differences between sexes. Increased IMT values were detected in 45 % and 41 % of female and male patients, respectively. For both sexes, age and BP correlated with elevated PWV. For IMT, we found a positive correlation with age and LDL cholesterol in males, but no correlation to any variables in females. At one year follow-up, a significant decrease of LVMI was detected in males (Delta -6.34) versus an increase in females (Delta +7.74) (Table 2). Similarly, IMT values tended to decrease in males (Delta -0.178 mm), but not in females (Delta +0.030 mm); with no statistically difference. Conclusions. We found significant sex differences considering classical RF and CV organ damage at baseline. The proportion of females being obese and having left ventricular hypertrophy was substantially higher. At follow up, males seemed to have benefited more from RT as seen in the reduction ofLVMI and IMT. These sex differences warrant further investigation since females seem to be at higher risk for later CV disease after RT.

Table 1. Prevalence of CV risk factors and target organ damage in females and males at baseline

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<th>Obesity</th>
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<th>Increased IMT</th>
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<tbody>
<tr>
<td>Female, n=43</td>
<td>28</td>
<td>77</td>
<td>0.02</td>
<td>0.85</td>
<td>0.45</td>
</tr>
<tr>
<td>Male, n=78</td>
<td>13</td>
<td>78</td>
<td>41</td>
<td>20</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 2. Comparison of changes in measurements of CV damage between baseline and 1-year follow-up

<table>
<thead>
<tr>
<th></th>
<th>Change in IMT</th>
<th>Change in PWV</th>
<th>Change in LVMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.03 ± 0.18</td>
<td>0.19</td>
<td>0.58 ± 1.66</td>
</tr>
<tr>
<td>Male</td>
<td>0.18 ± 1.30</td>
<td>0.55 ± 1.32</td>
<td>-6.34 ± 27.98</td>
</tr>
</tbody>
</table>
V5. Impact of Emotion Regulation and Emotional Arousal on Quality of Life and Adherence of Couples after Kidney Transplantation

Luisa Peters1, Laura Franke1, Daria Tkachenko1, Mario Schiffer2, Tanja Zimmermann1; 1Klinik für Psychosomatik und Psychotherapie, Medizinische Hochschule, Hannover, 2Klinik für Nieren- und Hochdruckerkrankungen, Medizinische Hochschule Hannover

Introduction. Nonadherence to immunsuppressive medication increases the risk of graft failure. Maladaptive emotion regulation strategies (ERS) seem to be a risk factor for nonadherence, whereas for patients in relationships spousal support appears as a protective resource. Emotional arousal, objectively measured by the fundamental frequency (f0) during spousal supportive communication is associated with supportive behavior.

Materials & Methods. This study examined the relationship between beliefs about immuno-suppressive medication, quality of life, ERS, emotions and emotional arousal, assessed during social support interactions of both spouses of N=50 couples after kidney transplantation.

Results. Maladaptive ERS of the transplant recipient were associated with lower mental quality of life of the partner, marginally higher own negative affect and lower beliefs about medication. Maladaptive ERS of the partner showed negative correlations with own mental quality of life. Regarding f0, gender differences were found. Higher f0 of the male transplant recipient were associated with more maladaptive ERS of the female partner. Marginally significate correlations were found with lower own beliefs about medication. Higher f0 of the wife of the male transplant recipient showed correlations with lower own positive affect, more negative affect of the male patient and lower beliefs about medication. Higher f0 of female transplant recipients were associated with lower own maladaptive ERS and lower maladaptive ERS of the husband.

Discussion. The findings support the relevance of early interventions focusing on identifying and modifying maladaptive ERS for both the patient and partner.

Mark Greer

Mark Greer is a consultant pulmonologist at Hanover Medical School. He has worked there for the past 10 years, focusing on lung transplantation and interventional bronchoscopy. He has published on various clinical aspects of candidate preparation and selection, organ allocation and common complications after lung transplantation.

Dr. Greer completed his undergraduate training at the Queen’s University of Belfast, Northern Ireland and undertook core training in internal medicine at various centres in both Scotland and Northern Ireland. He has been a member of the Royal College of Physicians of Edinburgh since 2006.
Background: Gingivitis and periodontitis are chronic inflammatory diseases caused by bacterial occupation, affecting tooth supporting tissues. Early stage of disease (gingivitis) is a reversible low-level inflammatory lesion limited to the soft tissues. However, gingivitis may lead to an irreversible, higher-level chronic inflammatory response (periodontitis) followed by tooth loss, if untreated. Clinical signs of disease are bleeding on probing (BoP), increase of probing pocket depths (PPD), suppuration and irreversible loss of attachment. In our western population males are more prone to severe gingivitis and periodontal diseases while females are more often periodontally healthy. Severe periodontal diseases increase systemic parameters of microinflammation and may put transplanted patients at an additional risk.

Methods: As part of an interventional study renal transplant recipients were clinically examined. The periodontal screening index (PSI) is an effective method to allow evaluation of periodontal conditions and was used to state a diagnosis. The mouth was split in sextants, every tooth was examined and the worst finding in every sextant was captured. Healthy individuals showed no PPD >3.5mm and maximum two sextants with BoP. Moderate gingivitis was assumed when BoP occurred in three sextants and severe gingivitis when BoP occurred in at least four sextants. The findings of the cohort were compared with findings of the “Deutsche Mundgesundheitsstudie V” (DMS V) which served as a healthy control. The participants of the control group were between 35 and 74 years.

Results: 247 adults (64% male, age 49 years with a range between 20-72 years) took part in the study. In agreement with the DMS V study men and women (35-74 years) had the same prevalence for moderate gingivitis and periodontitis but only 14.8% of female participants (figure 1). Furthermore, females were significantly more often periodontally healthy (40.7%) than male participants (29.4%). This gender gap was missing or at least weakened in the cohort of renal transplant recipients.

Conclusion: Male gender is known as a risk factor for periodontal diseases. However, in renal transplant recipients under immunosuppression the risk factor male gender seems to fade and almost vanish. Female gender does not seem to have any protective value in this special cohort. The risk for severe periodontitis decreases for males and adjusts to the prevalence of females for severe periodontitis. Renal transplant recipients are more likely to be periodontally diseased. Nevertheless, the risk for severe periodontitis seems not to be elevated for females and even reduced for males. Future research should include a larger cohort and a control group to challenge these initial findings.
V3. Risk Factors for Arterial Hypertension in Pediatric Renal Transplant Recipients Depend on Pubertal Status and Sex: A Longitudinal Analysis of the CERTAIN Registry

Bernhard M. W. Schmidt1, Rizky I. Sugianto2, Elke Wühl3, Kai Krupka3, Britta Höcker3, Burkhard Tönshoff5, Anette Melk2; 1Nephrology, Hannover Medical School, Hanover, Germany; 2Pediatric Nephrology, Hannover Medical School, Hanover, Germany; 3Pediatric Nephrology, University of Heidelberg, Heidelberg, Germany

Background. Arterial hypertension occurs or persists in children after renal transplantation. The factors influencing blood pressure after pediatric renal transplantation have not been systematically evaluated. The aim of our study is to longitudinally investigate the possible influencing factors on blood pressure (BP) in pediatric renal transplant patients with a special emphasis on differences associated with sex.

Methods. 336 pediatric renal transplant patients from the CERTAIN registry with complete data including casual BP measurements at discharge, 1, 2, and 3 years post-transplant were included in the analysis (n=209 male; n=127 female). To analyse the longitudinal data multivariable mixed model analysis was performed.

Results. In the multivariable mixed model analysis, male sex (p<0.018), being in pre-pubertal age (p<0.001), higher BMI (p<0.001), high CsA trough level (p<0.001), and an underlying disease not within the CAKUT spectrum (non-CAKUT) (p<0.001) and were associated with higher systolic BP. When stratified by the pubertal status, in the model for pre-pubertal children high CsA trough level (p=0.024), high TAC trough level (p=0.043) and NON-CAKUT significantly associated with higher systolic BP. The model for pubertal children showed male sex (p=0.011), younger age (p<0.001), BMI (p<0.001), high CSA (p=0.003) and NON-CAKUT (p=0.006) associated with higher systolic BP. The association between high CsA trough levels (p=0.003) and higher systolic BP could only be seen in females.

Conclusion. After onset of puberty sex differences with a lower blood pressure in female patients occurred suggesting a protective effect of female sex hormones. Interestingly, whereas the importance of BMI and age was preserved across both sexes, the importance of CsA trough levels only was visible in female patients. We conclude from our data that clinical care with regard to blood pressure control have to pay more attention on younger children and male patients. In addition there has to be a focus on avoiding higher CsA trough levels especially in female and pre-pubertal patients.

Ashley Lau

Ashley Lau is a MD candidate at Harvard Medical School. She completed her undergraduate studies at Stanford University, and is currently researching sex-specific aspects of transplantation in the Transplant Surgery Research Laboratory of Professor Stefan G. Tullius, MD, PhD at Brigham and Women’s Hospital and Harvard Medical School.
Anette Melk

Anette Melk is a clinician-scientist who received her MD at the University of Giessen (Germany) and her PhD from University of Alberta (Canada). She trained as a Pediatric Nephrologist at the University of Heidelberg Children’s Hospital. Dr. Melk is a Professor of Pediatrics and Transplantation Medicine at Hannover Medical School. Dr. Melk’s work on pathways leading to impaired regeneration in the pathogenesis of renal and cardiovascular diseases includes basic findings and concepts from cell and animal models to clinical applications. She has pioneered the idea that cellular senescence is crucial for the insufficient regenerative capacity of donor organs and an important target in therapeutic approaches. Her clinical research projects aim to further decipher factors leading to cardiovascular and renal comorbidity in transplant recipients. Dr. Melk’s holistic view on optimization of patient and graft survival lead her initiate the first German research consortium that deals with sex- and gender-related differences in renal transplantation with the idea to significantly influence health policy development.

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V2. Gender has no impact on the occurrence of posttransplant encephalopathy after liver transplantation

Melike Dirks*1,2, Henning Pfugrad*1,2, Annemarie Golabeker1,2, Martina Bernhardt1,2, Anita Blanka Tryc1,2, Elmar Jäckel2,3, Hannelore Barg-Hock2, Jürgen Klempnauer2,4, Karin Weissenborn1,2

1Department of Neurology, Hannover Medical School, Hannover, Germany; 2Integrated Research and Treatment Centre Transplantation, Hannover Medical School, Hannover, Germany; 3Department of Gastroenterology, Hepatology and Endocrinology, Hannover Medical School, Hannover, Germany; 4Department of General, Visceral and Transplant Surgery, Hannover Medical School, Hannover, Germany. * These authors contributed equally.

Introduction. About 30% of the patients who undergo liver transplantation (OLT) develop a posttransplant encephalopathy (PTE) in the first weeks thereafter. PTE comprises metabolic-toxic caused symptoms such as disorientation, confusion, hallucinations, cognitive dysfunction and seizures. So far the impact of gender on the occurrence of PTE is unknown and thus was analysed in the present study.

Methods. 272 (age 48.5 ± 11.2 years) OLT patients seen at the neurometabolic outpatient clinic of Hannover Medical School between 07/2008 and 02/2016 were included. The variables age, sex, underlying liver disease, renal function, medication, history of hepatic encephalopathy (HE) before OLT and PTE after OLT were registered.

Results. The study cohort comprised 61% men (n=166 men, n=106 women). Age did not differ between sexes. In male patients hepatitis C (HCV), hepatitis B (HBV) and alcoholic cirrhosis (AC) were more frequent while acute liver failure (ALF) was less often than in women [(male; female) HCV n=23 (14%), n=6 (6%); HBV n=29 (18%), n=10 (9%); AC n=24 (15%), n=10 (9%); ALF n=10 (6%), n=19 (18%); p<0.01]. Liver cirrhosis was more frequent in men (n=138 (83%) male, n=63 (59%) female; p<0.001).

No gender difference was detected concerning incidence of HE in patients with liver cirrhosis (n=201). Furthermore, PTE occurred in 31% of the male patients (n=50) and 30% of the female patients (n=31) [p=0.89].

Conclusions. OLT patients show gender differences concerning underlying liver disease and liver cirrhosis. PTE is a frequent complication after OLT, however, gender has no impact.

Financial support: This study was supported by grants from the German Federal Ministry of Education and Research (reference number: 01EO0802 and 01EO1302).
V1. Survival after heart, lung and combined heart-lung transplantation under gender-specific view using Eurotransplant data bank

Sandra Eifert1, Karolina Kubickiene2, Bruno Meiser1; 1Transplant Center Munich, 2Institute for Gender Medicine, Karolinska Institute, Sweden

Background. Gender-specific aspects in organ transplantation may mainly be influenced by gender of the donor and recipient. Frequently, transplanted organs do best, when the environment fits the genetically predisposed sex. Despite these two factors, heart size and vasculopathy, immunologic equipment and immunologic recognition of men and women may play a major role. Literature reviews and registries reveal controversial results.

Methods. We reviewed data of heart transplants (140 female and 464 male patients), combined heart and lung transplants (4 women, 5 men) and lung transplants (317 female and 353 male patients) and interpreted the influence of gender differences of donor and recipient on three year-survival after Tx.

Results. The survival of male and female recipients as well as the results of donated organs of males and females were investigated among heart, heart-lung and lung transplants over a period of three years. Although survival rates of men and women did differ, they did not express a statistical significant result. This is oppositional to ISHLT data based investigations and may be due to multiple factors.

Conclusions. Gender-matched organ transplantation would be ideal, but not suitable in practice due to the shortage of organs.

Hans Messner

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Undine Samuel

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Bernhard M.W. Schmidt

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Dr. Schmidt’s research interests are in cardiovascular risk and renal disease progression, especially in hypertension. He is involved in prospective cohort studies on the course of cardiovascular disease and renal comorbidity in patients that receive either a solid organ or stem cell transplantation. His further research is based on analyzing large data bases, including claims data and data from large registries.

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Lori West

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Dr. West is the founding Director of the Canadian National Transplant Research Program (CNTRP). Launched in 2013, the CNTRP is a coalition of 350+ research participants at 31 sites across Canada funded by several the Canadian Institutes of Health Research and trans-sector partners. A globally unique research constellation, the CNTRP integrates basic, clinical and health policy/ethics researches in the three arenas of organ donation, organ transplantation and hematopoietic cell transplantation/cellular therapies. With a dynamic framework that is highly transdisciplinary, bilingual and gender-balanced, CNTRP research spans not only the main health research pillars but also links with natural sciences/engineering and social sciences/humanities, and includes extensive patient/citizen engagement and numerous international collaborations.

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Introduction. About 30% of the patients who undergo liver transplantation (OLT) develop a posttransplant encephalopathy (PTE) in the first weeks thereafter. PTE comprises metabolic-toxic caused symptoms such as disorientation, confusion, hallucinations, cognitive dysfunction and seizures. So far the impact of gender on the occurrence of PTE is unknown and thus was analysed in the present study.

Methods. 272 (age 48.5 ± 11.2 years) OLT patients seen at the neurometabolic outpatient clinic of Hannover Medical School between 07/2008 and 02/2016 were included. The variables age, sex, underlying liver disease, renal function, medication, history of hepatic encephalopathy (HE) before OLT and PTE after OLT were registered.

Results. The study cohort comprised 61% men (n=166 men, n=106 women). Age did not differ between sexes. In male patients hepatitis C (HCV), hepatitis B (HBV) and alcoholic cirrhosis (AC) were more frequent while acute liver failure (ALF) was less often than in women [(male; female) HCV n=23 (14%), n=6 (6%); HBV n=29 (18%), n=10 (9%); AC n=24 (15%), n=10 (9%); ALF n=10 (6%), n=19 (18%); p<0.01]. Liver cirrhosis was more frequent in men (n=138 (83%) male, n=63 (59%) female; p<0.001). No gender difference was detected concerning incidence of HE in patients with liver cirrhosis (n=201). Furthermore, PTE occurred in 31% of the male patients (n=50) and 30% of the female patients (n=31) (p=0.89).

Conclusions. OLT patients show gender differences concerning underlying liver disease and liver cirrhosis. PTE is a frequent complication after OLT, however, gender has no impact.

Financial support: This study was supported by grants from the German Federal Ministry of Education and Research (reference number: 01EO0802 and 01EO1302).
V3. Risk Factors for Arterial Hypertension in Pediatric Renal Transplant Recipients Depend on Pubertal Status and Sex: A Longitudinal Analysis of the CERTAIN Registry

Bernhard M. W. Schmidt1, Rizky I. Sugianto2, Elke Wühl3, Kai Krupka3, Britta Höcker3, Burkhard Tönshoff3, Anette Melk2; 1Nephrology, Hannover Medical School, Hanover, Germany; 2Pediatric Nephrology, Hannover Medical School, Hanover, Germany; 3Pediatric Nephrology, University of Heidelberg, Heidelberg, Germany

Background. Arterial hypertension occurs or persists in children after renal transplantation. The factors influencing blood pressure after pediatric renal transplantation have not been systematically evaluated. The aim of our study is to longitudinally investigate the possible influencing factors on blood pressure [BP] in pediatric renal transplant patients with a special emphasis on differences associated with sex.

Methods. 336 pediatric renal transplant patients from the CERTAIN registry with complete data including casual BP measurements at discharge, 1, 2, and 3 years post-transplant were included in the analysis (n=209 male; n=127 female). To analyse the longitudinal data multivariable mixed model analysis was performed.

Results. In the multivariable mixed model analysis, male sex (p<0.018), being in pre-pubertal age (p<0.001), higher BMI (p<0.001), high CsA trough level (p<0.001), and an underlying disease not within the CAKUT spectrum (non-CAKUT) (p<0.001) and were associated with higher systolic BP. When stratified by the pubertal status, in the model for pre-pubertal children high CsA trough level (p=0.024), high TAC trough level (p=0.043) and NON-CAKUT significantly associated with higher systolic BP. The model for pubertal children showed male sex (p=0.011), younger age (p<0.001), BMI (p<0.001), high CSA (p=0.003) and NON-CAKUT (p=0.006) associated with higher systolic BP. The association between high CsA trough levels (p=0.003) and higher systolic BP could only be seen in females.

Conclusion. After onset of puberty sex differences with a lower blood pressure in female patients occurred suggesting a protective effect of female sex hormones. Interestingly, whereas the importance of BMI and age was preserved across both sexes, the importance of CsA trough levels only was visible in female patients. We conclude from our data that clinical care with regard to blood pressure control have to pay more attention on younger children and male patients. In addition there has to be a focus on avoiding higher CsA trough levels especially in female and pre-pubertal patients.

Ashley Lau

Ashley Lau is a MD candidate at Harvard Medical School. She completed her undergraduate studies at Stanford University, and is currently researching sex-specific aspects of transplantation in the Transplant Surgery Research Laboratory of Professor Stefan G. Tullius, MD, PhD at Brigham and Women’s Hospital and Harvard Medical School.

Jasmin Grischke, Jörg Eberhardt, Bernhard M.W. Schmidt, Daniel Kayser, Philipp-Cornelius Potl, Magdalena Foltzki, Meike Stiesch, Jörg Eberhardt, Bernhard M.W. Schmidt, Daniel Kayser, Philipp-Cornelius Potl, Magdalena Foltzki, Meike Stiesch

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Aim: The aim of this epidemiological endeavor is to point out gender differences in the prevalence of gingivitis and periodontitis in a cohort of renal transplant recipients in comparison to a control population. Background: Gingivitis and periodontitis are chronic inflammatory diseases caused by bacterial occupation, affecting tooth supporting tissues. Early stage of disease (gingivitis) is a reversible low-level inflammatory lesion limited to the soft tissues. However, gingivitis may lead to an irreversible, higher-level chronic inflammatory response (periodontitis) followed by tooth loss, if untreated. Clinical signs of disease are bleeding on probing (BoP), increase of probing pocket depths (PPD), suppuration and irreversible loss of attachment. In our western population males are more prone to severe gingivitis and periodontitis while females are more often periodontally healthy. Severe periodontal diseases increase systemic parameters of microinflammation and may put transplanted patients at an additional risk.

Methods: As part of an interventional study renal transplant recipients were clinically examined. The periodontal screening index (PSI) is an effective method to allow evaluation of periodontal conditions and was used to state a diagnosis. The mouth was split in sextants, every tooth was examined and the worst finding in every sextant was captured. Healthy individuals showed no PPD >3.5mm and maximum two sextants with BoP. Moderate gingivitis was assumed when BoP occurred in three sextants and severe gingivitis when BoP occurred in three sextants and severe gingivitis when BoP occurred more often. Moderate periodontitis was diagnosed with PSI Code 3 in one to three sextants and severe periodontitis was diagnosed with PSI Code 3 and 4 in at least four sextants. The findings of the cohort were compared with findings of the “Deutsche Mundgesundheitsstudie V” (DMS V) which served as a healthy control. The participants of the control group were between 35 and 74 years.

Results: 247 adults (64% male, age 49 years with a range between 20-72 years) took part in the study. In agreement with the DMS V study men and women (35-74 years) had the same prevalence for moderate periodontitis (figure 1). In the DMS V 25.3% of male participants suffered from severe periodontitis but only 14.8% of female participants (figure 2). Furthermore, females were significantly more often periodontally healthy (40.7%) than male participants (29.4%). This gender gap was missing or at least weakened in the cohort of renal transplant recipients.

Conclusion: Male gender is known as a risk factor for periodontal diseases. However, in renal transplant recipients under immunosuppression the risk factor male gender seems to fade and almost vanish. Female gender does not seem to have any protective value in this special cohort. The risk for severe periodontitis decreases for males and adjusts to the prevalence of females for severe periodontitis. Renal transplant recipients are more likely to be periodontally diseased. Nevertheless, the risk for severe periodontitis seems not to be elevated for females and even reduced for males. Future research should include a larger cohort and a control group to challenge these initial findings.

Fig. 1. Gender dependent diagnosis comparison in renal transplant recipients.

Fig. 2. Gender dependent comparison between renal transplant recipients and a control (DMS V).
V5. Impact of Emotion Regulation and Emotional Arousal on Quality of Life and Adherence of Couples after Kidney Transplantation

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Introduction. Nonadherence to immunsuppressive medication increases the risk of graft failure. Maladaptive emotion regulation strategies (ERS) seem to be a risk factor for nonadherence, whereas for patients in relationships spousal support appears as a protective resource. Emotional arousal, objectively measured by the fundamental frequency (f0) during spousal supportive communication is associated with supportive behavior.

Materials & Methods. This study examined the relationship between beliefs about immuno-suppressive medication, quality of life, ERS, emotions and emotional arousal, assessed during social support interactions of both spouses of N=50 couples after kidney transplantation.

Results. Maladaptive ERS of the transplant recipient were associated with lower mental quality of life of the partner, marginally higher own negative affect and lower beliefs about medication. Maladaptive ERS of the partner showed negative correlations with own mental quality of life. Regarding f0, gender differences were found. Higher f0 of the male transplant recipient were associated with more maladaptive ERS of the female partner. Marginally significate correlations were found with lower own beliefs about medication. Higher f0 of the wife of the male transplant recipient showed correlations with lower own positive affect, more negative affect of the male patient and lower beliefs about medication. Higher f0 of female transplant recipients were associated with lower own maladaptive ERS and lower maladaptive ERS of the husband.

Discussion. The findings support the relevance of early interventions focusing on identifying and modifying maladaptive ERS for both the patient and partner.

Mark Greer

Mark Greer is a consultant pulmonologist at Hanover Medical School. He has worked there for the past 10 years, focusing on lung transplantation and Interventional bronchoscopy. He has published on various clinical aspects of candidate preparation and selection, organ allocation and common complications after lung transplantation.

Dr. Greer completed his undergraduate training at the Queen’s University of Belfast, Northern Ireland and undertook core training in internal medicine at various centres in both Scotland and Northern Ireland. He has been a member of the Royal College of Physicians of Edinburgh since 2006.
V6. Sex differences in subclinical cardiovascular organ damage in renal transplant recipients

Blanca Borchert-Mörlins1, Tabea Stoklassa1, Nima Memaran1, Elena Bauer1, Sabrina Balg1, Anette Melki1, Bernhard M.W. Schmidt1; 1Department of Ped. Kidney, Liver and Metabolic Diseases, Hannover Medical School, Hannover, Germany; 2Department of Nephrology, Hannover Medical School, Hannover, Germany.

Background. Cardiovascular (CV) disease is the leading cause of death in adults following renal transplantation (RT). Sex-specific differences of the pathophysiology, clinical presentation and outcome of CV disease in the general population are well described. The aim of this study was to evaluate differences in the prevalence of subclinical CV organ damage and contributing risk factors between females and males at the time of RT and during follow up. Methods. In a single center longitudinal study we enrolled 121 adults [male 64 %, age 51±15 years] at time of RT. Anthropometric data, laboratory values and office blood pressure were evaluated at baseline and after one year. Subclinical CV organ damage was determined through non-invasive measurements of aortic pulse wave velocity (PWV), carotid intima media thickness (IMT) and left ventricular mass index (LVMI). Results. At baseline, obesity (based on increased BMI) was detected in 28 % of female and in 13 % of male patients (p=0.02). No sex-difference was detected in the prevalence of hypertension (HTN) [females: 77 %; males: 78 %]. CV organ damage was highly prevalent at baseline (Table 1) with no differences between sexes. Increased IMT values were detected in 45 % and 41 % of female and male patients, Elevated PWV was found in 26% and 20% and increased LVMI in 58 % and 45% of females and males, respectively. For both sexes, age and BP correlated with elevated PWV. For IMT, we found a positive correlation with age and LDL cholesterol in males, but no correlation to any variables in females. At one year follow-up, a significant decrease of LVMI was detected in males (Delta -6.34) versus an increase in females (Delta +7.74) (Table 2). Similarly, IMT values tended to decrease in males (Delta -0.178 mm), but not in females (Delta +0.030 mm); with no statistically difference. Conclusions. We found significant sex differences considering classical RF and CV organ damage at baseline. The proportion of females being obese and having left ventricular hypertrophy was substantially higher. At follow up, males seemed to have benefited more from RT as seen in the reduction of LVMI and IMT. These sex differences warrant further investigation since females seem to be at higher risk for later CV disease after RT.

Table 1. Prevalence of CV risk factors and target organ damage in females and males at baseline

<table>
<thead>
<tr>
<th></th>
<th>Obesity</th>
<th>HTN</th>
<th>Increased IMT</th>
<th>Increased PWV</th>
<th>Increased LVMI</th>
</tr>
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<tbody>
<tr>
<td>Female, n=43</td>
<td>28 (p=0.02)</td>
<td>77</td>
<td>0.85 (0.45)</td>
<td>0.74 (0.54)</td>
<td>28 (0.47)</td>
</tr>
<tr>
<td>Male, n=78</td>
<td>13</td>
<td>78</td>
<td>41 (0.45)</td>
<td>20 (0.45)</td>
<td>45 (0.45)</td>
</tr>
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</table>

Table 2. Comparison of changes in measurements of CV damage between baseline and 1-year follow-up

<table>
<thead>
<tr>
<th></th>
<th>Change in IMT</th>
<th>Change in PWV</th>
<th>Change in LVMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD (p)</td>
<td>Mean ± SD (p)</td>
<td>Mean ± SD (p)</td>
</tr>
<tr>
<td>Female</td>
<td>0.03 ± 0.18</td>
<td>0.19</td>
<td>0.58 ± 1.66</td>
</tr>
<tr>
<td>Male</td>
<td>0.18 ± 1.30</td>
<td>0.53 ± 1.32</td>
<td>7.74 ± 28.43</td>
</tr>
</tbody>
</table>

We found a positive correlation with age and LDL cholesterol in males, but no correlation to any variables in females.
Male and female patients-in many diseases-present with different symptoms, gain frequently no gender-sensible diagnostics and get offered inappropriate therapeutic options. To have knowledge of and obey sex and gender differences in transplant medicine, specifically in the area of diagnostics and consecutively treatment, would personalize treatment and increase quality of health care.

Several mechanisms by which donor/recipient sex mismatch might affect outcomes in transplantation have been identified, including hormonal differences, chromosome differences, and antigen development. There is a certain amount of innovative gender-sensible approaches in transplant medicine. Women experience gendered exposure to several risk factors. Outcomes may be inequitable, because women do not receive the care they require for these gendered exposures.

In women, especially pregnancies/reproductive history and related complications play a major role and lead to a specific onset of symptoms among women. Pregnancy is a multi-dimensional condition: pregnant women become ill, and transplanted women may get pregnant. Their bodies are undergoing massive hormonal and immunologic changes. Despite organic factors, immunologic equipment and immunologic recognition of men and women may be highly important. Parallel to organ transplantation, during pregnancy, distinct mechanisms are responsible, why the mother does not reject the “foreign” fetus. These mechanisms include fetal as well as local maternal factors. Specifically, persisting fetal cells in the maternal circulation (defined as chronic microchimerism) may have implications on the development of autoimmune diseases.

In organ transplantation, it is highly useful to have knowledge in local physiological immunotolerance to develop new therapeutic strategies not necessarily requiring systemic immunosuppression. Understanding the regulatory immunologic responses in pregnancy including the invading alloimmune fetus-derived trophoblast cells into the decidua may lead to new therapeutic concepts in organ transplantation. Further investigations in transplant immunology under gender-specific view are needed.

Therefore, gender lens tools as methodological techniques developed by Canadian colleagues are needed. The gender lens tool is constructed to complete medical knowledge to improve health outcomes at the population level. Its goal consists of its application to clinical and biomedical research.

Johnson et al. developed several options to enable researchers to use sex and gender-based analysis (SGBA) at various stages of the research process.

In the era of individualized medicine, existing medical health care inequities have to be addressed: putting gender on the agenda shall become the goal of clinical and biomedical transplant research.
Christine S. Falk

Christine Falk is the head of the Institute of Transplant Immunology at MHH. Her research focuses on immunological alterations in the course of solid organ transplantation, lung, kidney and liver, during ischemia/reperfusion injury, in particular. Coming from the tumor field at the German Cancer Research Center in Heidelberg, she sees tumor and transplant immunology as two sides of the same coin – on one hand, we can learn from solid tumors how they protect themselves from immune recognition and rejection. On the other hand, we can learn from transplanted organs what it takes to reject allografted tissue. In both situations, there are common denominators of rejection, i.e. specialized innate and adaptive immune cells and the cytokine / chemokine network, which orchestrate immune responses and thus, provide candidates for therapeutic targets. The group of C. Falk has established an immunomics portfolio for immune monitoring of solid organ transplant recipients comprising flow cytometry panels for T, B, NK and myeloid cell subsets, cytokine and chemokine protein multiplex assays, functional immune assays like ELISpot and expression profiling as well as advanced statistics for heat map, PCA and KNN network analyses using the Qlucore Omics software. In the context of the INSPIRE trial comparing standard of care cold static perfusion (SOC) with normothermic oxygenated ex vivo lung perfusion (Organ care system, OCS), we could demonstrate that recipients of OCS-preserved lungs show significantly lower ischemia/reperfusion injury compared to recipients of SOC-preserved lungs. At present, the group is investigating underlying mechanisms for this suppression of inflammation via ex vivo perfusion. In addition, the effects of sex and gender in this specialized lung transplant setting are currently investigated based on the existing data sets.

Dr. Falk is one of the investigators of a collaborative project between Hannover Medical School and the University Osnabrück that addresses known and potentially only assumed differences between female and male renal transplant patients. Her sub-project deals with sex-specific immunological differences with a special focus on differences in antibody frequency and significance. The project is funded within the program “Geschlecht-Macht-Wissen” by the Ministry of Science and Culture of Lower Saxony.

P2. Oral lesions in organ transplant patients - what is the role played by sex/gender?

Christiane Gleissner; Department of Restorative Dentistry, University Medical Center, Johannes Gutenberg University Mainz

Patients who have undergone organ transplantation can develop a variety of oral lesions that are either related to their medication or due to drug-induced immunosuppression. Frequently diagnosed lesions are gingival hyperplasia, hairy leukoplakia, viral and fungal infections and a high incidence of malignant change, especially lip cancer. Increasingly, cases of post-transplant lymphoproliferative disorder in the oral cavity were recently described. Although several studies reported that the prevalence of these lesions is different for men and women, a systematic analysis of the literature as to how sex and gender influences etiology, clinical symptoms and therapy of these lesions has not been performed.

This study therefore aimed to examine and evaluate the gender sensitivity of the available literature in order to present the current status of the sex/gender specific knowledge in this field, and to point out gaps in knowledge. A recently introduced index was used as the evaluation tool, with the aid of which can be quantitatively assessed if a scientific publication includes sex/gender as a research category.

The analyses confirm data from previous studies of dental publications. Only a small percentage of the studies presented sex/gender stratified data or sex/gender specific recommendations. Most publications covered sex/gender specific aspects in epidemiology. Studies on etiology and therapy rarely included sex/gender as influencing factors. Overall, the basis of the results found is too thin to derive evidence-based recommendations. There is a need for research, especially in the fields of etiology and therapy.
P3. Virus-specific T cells from third party T cell donors

Britta Maecker-Kolhoff, Sabine Tischer, Hans-Gert Heuft, Lilia Goudeva, Jörg Martens, Susann Placzko, Murielle Verboom, Lubomir Arseniev, Christoph Priesner, Ulrike Köhl, Rainer Blasczyk, Britta Eiz-Vesper; Institute for Transfusion Medicine, Hannover Medical School, Germany; Department of Pediatric Hematology and Oncology, Hannover Medical School, Germany; Institute for Cellular Therapeutics, Hannover Medical School, Germany; Integrated Research and Treatment Center (IFB-Tx), Hannover Medical School, Germany

**Background.** Intensive immunosuppressive therapy for prevention of graft rejection and graft-versus-host disease (GvHD) and for treatment of GvHD puts the patients before and after hematopoietic stem cell transplantation (HSCT) or solid organ transplantation (SOT) at risk of opportunistic infections due to an ablated or severely compromised T-cell immune response. Among those, infection with and reactivation of endogenous herpes viruses like cytomegalovirus (CMV), Epstein-Barr virus (EBV), human herpesvirus 6 (HHV6), lytic agents such as adenovirus (ADV) as well as polyoma virus BK (BKV) are frequent and severe complications and associated with significant morbidity and mortality. The shortcomings of conventional therapies have increased the interest in antiviral T-cell transfer. The efficacy and the clinical outcome in high risk patients can be improved by a rapid recruitment of a suitable T-cell donor and an established method for fast manufacturing of antiviral T cells. There has been no data on differences between female and male donors.

**Materials and Methods.** To facilitate and accelerate donor recruitment a registry (alloCELL) for unrelated donors was established. The registry currently records >2000 HLA-typed donors extensively screened for their antiviral T-cell repertoire. The alloCELL lab further established comprehensive protocols to consider clinical requirements of patients at high risk for viral infections or with failed conventional therapy. The manufacturing license was obtained for generating clinical-grade mono- and multivirus-specific T-cell products according to the German Medicinal Products Act using the IFN-γ Cytokine Capture System and ClinMACS Prodigy device. T-cell donors were defined as eligible if ≥0.03% specific IFN-γ+ T cells are detectable.

**Results.** Antiviral T-cell frequencies in third party alloCELL donors were determined routinely by ELISPOT and multimer staining. We observed highly significant individual and overall differences in T-cell frequencies against CMV, EBV, ADV, BKV, HHV6 and Aspergillus antigens. Antiviral T-cell frequencies, availability and willingness of the donors are currently analyzed with respect to sex and age of donors.

**Conclusion.** Our data support clinical safety and efficacy of third-party antiviral T cells. Since the success of antiviral T-cell transfer benefits from (i) accurate monitoring of viral load and antiviral T-cell frequencies in patients, (ii) early and fast selection and availability of suitable T-cell donors, it is important to further elucidate whether sex differences play a role in T-cell frequencies and availability of donors.

Anne I. Dipchand

Anne Dipchand, MD, is Professor of Paediatrics at the University of Toronto and a Paediatric Cardiologist and the head of the Heart Transplant Program at the Hospital for Sick Children (SickKids) in Toronto. Her clinical research activities are focused on paediatric heart failure and transplantation.

Dr. Dipchand is actively involved in clinical research, especially registry-based analyses, having been the President of the Pediatric Heart Transplant Study (PHTS) and the Associate Director – Paediatrics for the International Society of Heart and Lung Transplantation (ISHLT) Registry - the two major international registries for pediatric heart transplantation. She is the Chair of the newly formed International Pediatric Heart Failure Registry (IPHFR). She sits on the Executive Committee of the ISHLT Registry for Mechanically Assisted Circulatory Support (IMACS). She is the currently the President of the International Paediatric Transplant Association (IPTA). Dr. Dipchand is also a Co-PI for a large NIH-funded consortium looking at alloantibodies in paediatric heart transplantation.
Frans H. J. Claas is director of the Eurotransplant Reference Laboratory and Professor of Immunogenetics of Transplantation at the Leiden University Medical Center in Leiden, the Netherlands. The main topics of his current research are the differential immunogenicity of HLA mismatches in clinical transplantation and the immunology of pregnancy as a model for transplantation tolerance. The studies of his research group have generated more than 500 papers in peer-reviewed journals. He was the initiator of a special program within Eurotransplant to enhance transplantation of highly sensitized renal transplant patients on basis of acceptable HLA mismatches.

Dr. Claas is an active member of different professional societies as reflected amongst others by his past-presidency of the European Federation for Immunogenetics (EFI) and past-membership of the Board of the American Society for Histocompatibility and Immunogenetics (ASHI). He is an editor-in-chief of Transplant Immunology.

P4. Adaptive Personality Traits and Psychosocial Correlates among Living Kidney Donors

Iris Pollmann1, Falkah Gueler2, Marie Mikuteit1,2,3, Mariel Nöhre1, Nicolas Richter4, Karin Weissenborn1 and Martina de Zwaan1; 1Department of Psychosomatic Medicine and Psychotherapy, Hannover Medical School, Hannover, Germany; 2Department of Nephrology, Hannover Medical School, Hannover, Germany; 3Department of Neurology, Hannover Medical School, Hannover, Germany; 4Department of Surgery, Hannover Medical School, Hannover, Germany

Since living kidney donors have repeatedly been shown to be mentally more healthy compared to the general population, they might also exhibit more adaptive personality characteristics. We investigated the personality traits of 315 living kidney donors (202 female and 113 male donors) on average 7.1 years after donation using the NEO-Five Factor Inventory, a frequently used personality inventory measuring the “big five” dimensions of personality (neuroticism, extraversion, openness, agreeableness, and conscientiousness). In addition, levels of depression, anxiety, and fatigue were assessed with the Patient Health Questionnaire-Depression Scale, GAD-7, and Multidimensional Fatigue Inventory. Kidney donors showed more adaptive personality traits with higher agreeableness and lower neuroticism scores compared to the German general population. This was even more pronounced in living kidney donors with a high motivation to donate again (non-regreters). Scores for depression, anxiety, and fatigue did not differ from general population values and were significantly correlated with most personality dimensions. The more adaptive personality characteristics of living kidney donors might either be a selection effect or the consequence of the experience of donation and improved health of the close relative. Regardless of the causal relationship, adaptive personality traits might positively influence both physical and psychosocial well-being of the donor. Longitudinal studies should investigate if living donation might lead to persistent adaptive changes in personality traits.
P5. Gender and Sex at MHH in a nutshell

Dr. phil. Bärbel Miemietz, M.A., Gender Equality Officer, Hannover Medical School, Hannover, Germany

In 2006, MHH’s Gender Equality Officer secured funds from the Lower Saxony Ministry of Science (MWK) for a status survey on the gender perspective in research and teaching. In 2008 started a collaborative project called ‘Inclusion of Gender-Related Content in the Hannibal Model Curriculum’. The funds were used in part for curriculum development and partially for a series of workshops held in cooperation with numerous MHH departments. In December 2009 MHH’s ‘Centre of Excellence for Gender-Sensitive Medicine’, was initiated whose goals include establishing a gender-specific approach as a quality criterion in medicine and setting up and expanding a network for gender-sensitive teaching, research, patient care and continuing education. Conferences on sex and gender in medicine were held in 2010 and 2011, a new series of workshops on ‘Gender and Diversity – Fresh Momentum in Medicine’ launched in 2013. From 2013, MHH specifically incorporated the issue of gender-sensitive research into its annual survey for its Research Report. In the Gender Equality Plan for 2013, MHH committed to a gender-sensitive approach in research, teaching and patient care. In 2015–2018, a project entitled ‘Gender – Power – Knowledge in Transplantation: From Myth to Biomedical Reality, Taking Kidney Transplants as an Example’ funded by the MWK was implemented. In July 2017, MHH applied again to the MWK for funding of a W3 professorship in Interdisciplinary Transplant Medicine with a Focus on Gender Research.

Marina Berenguer

Marina Berenguer is a Consultant Hepatologist at La Fe University Hospital in Valencia, Spain and Professor of Medicine at the University of Valencia. She trained in medicine at the University of Valencia before completing a fellowship at the VA Medical Center / University of California (USA) with Dr. T. Wright.

She is well recognized for her important contributions in the field of post-transplantation HCV liver disease. She was involved in the creation of various consensus documents on viral hepatitis and liver disease, and she is an active committee member for several national and international hepatology and liver transplantation societies. Since its creation in 2006, she has also coordinated research within a national research network in hepatology-gastroenterology (“Centro de Investigación Biomédica en Red en Enfermedades Hepáticas y Digestivas”, CIBERehd). Prof. Berenguer served as Associate Editor for the Journal of Hepatology and Liver Transplantation until December 2014 and is now Deputy Editor for Transplantation. She has authored more than 300 publications in peer-reviewed journals as well as over 70 chapters in international and national textbooks.
Birgit Babitsch is Professor of New Public Health at the Institute for Health Research and Education at the Osnabrück University. She graduated in social science, public health as well as management of health and social institutions. Currently, she is the institute’s director and dean of studies.

Her main research interests are social determinants of health, inequalities and health, public health implementation, diversity in health service research and child and youth health. Current research projects are dealing with the adoption of the capability approach in public health, safety culture in health care facilities, competence development of health care professionals and health as well as health care of young people with disabilities.

She conducted several national and international research projects in her research fields applying a multi-methods approach. Furthermore, she was also engaged in implementing gender aspects into the public health and medical curriculum as well as-one of the first-into clinical practice guidelines. She has been publishing several articles covering the field of social inequality, capacity building, gender/diversity in health and health services.

Dr. Babitsch is one of the investigators of a collaborative project between Hannover Medical School and the University Osnabrück that addresses known and potentially only assumed differences between female and male renal transplant patients. Her sub-project deals with the evaluation of current guidelines as well as the description of requirements on and the translation of gender-specific guidelines in renal transplantation. The project is funded within the program “Geschlecht-Macht-Wissen” by the Ministry of Science and Culture of Lower Saxony.

<table>
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<tr>
<th>Project</th>
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<th>Title</th>
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<td>OPEX_2</td>
<td>Wiegmann</td>
<td>Immune monitoring accompanying the prospective, multi-center, randomized clinical investigation of TransMedics® Organ Care System™ (OCS) for lung preservation and transplantation</td>
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<td>OPEX_4</td>
<td>Renne</td>
<td>Functional magnetic resonance imaging (fMRI) for evaluation of lung transplants prior to transplantation using the organ care system (OCS)</td>
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<td>CBT_1</td>
<td>Franke</td>
<td>Development of novel cellular immune intervention strategies in allogeneic stem cell transplantation based on the isolation and expansion of donor regulatory T cells</td>
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<td>CBT_3</td>
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<td>Regulatory T cell therapy after organ transplantation – from bench to bedside</td>
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<td>Allogeneic HLA-matched EBV-specific T cells for patients with EBV-associated post-transplant malignancies</td>
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<td>Assessment of ANA-associated antigens for targeted T cell precursor-based adoptive transfer after allogeneic hematopoietic stem cell transplantation</td>
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<td>Schultz-Zevey</td>
<td>Assessment of T cell repertoire after therapeutic donor lymphocyte infusion</td>
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<td>CBT_11</td>
<td>Ha</td>
<td>Improving the quality of hematopoietic stem cells for transplantation and gene therapy</td>
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<tr>
<td>ISI_1/ISI_7</td>
<td>Hambach</td>
<td>Humoral, cellular and miRNA determinants of the clinical outcome after HLA-matched allogeneic stem cell transplantation</td>
</tr>
<tr>
<td>ISI_2</td>
<td>Pape</td>
<td>Development of a new immune monitoring panel including virus-specific T cells (VTS), cytokines and DSA for future OPTimization and individualization of IMMUNosuppression after paediatric kidney transplantation (OPTIMUN-study)</td>
</tr>
<tr>
<td>ISI_3</td>
<td>Pape</td>
<td>Immune Response of Pediatric Renal Transplant Recipients challenged by Sclerosis. Vaccination or Non-Adherence: Cross-Sectional and Prospective Analyses of the International CERTAIN Registry Cohort</td>
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<td>ISI_5/ISI_6</td>
<td>Taubert</td>
<td>Molecular Microscopy of Human Liver Allografts</td>
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<td>ISI_8</td>
<td>Goldschmidt</td>
<td>Immuno-monitoring after paediatric liver transplantation – in search for non-invasive predictors of biopsy-proven acute cellular rejection. An independent sub-study of the ChildFree study</td>
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<tr>
<td>ISI_9</td>
<td>Schultz-Zevey</td>
<td>Monitoring of EBV-specific immunity and humoral milieu factors as early markers for PTLD development in EBV positive high risk pediatric SOT patients</td>
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<td>Project</td>
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<tr>
<td>FIB_1</td>
<td>Vogel-Claussen</td>
<td>Functional Lung MRI for early detection of chronic lung rejection and pulmonary graft versus host disease due to Bronchiolitis Obliterans Syndrome (BOS)</td>
</tr>
<tr>
<td>FIB_2</td>
<td>Wintterle Getzin</td>
<td>Risk factor evaluation for inferior outcome after kidney transplantation by assessment of renal pathophysiology with functional MRI in correlation with molecular markers</td>
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<tr>
<td>CORE_1</td>
<td>Melk Schmidt Beutel</td>
<td>Cardiovascular disease after transplantation – causes and prevention</td>
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<tr>
<td>CORE_2</td>
<td>Manns Klempner Wedenmeyer von Hahn</td>
<td>Prevention and treatment of hepatitis virus infections in liver transplant recipients</td>
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<tr>
<td>CORE_3</td>
<td>Weißenborn</td>
<td>Chronic neurotoxicity of calcineurin inhibitors in patients after liver transplantation</td>
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<tr>
<td>CORE_4</td>
<td>Hartmann Müller Wulff</td>
<td>Opportunities for life in paediatric organ transplant recipients</td>
</tr>
<tr>
<td>CORE_5</td>
<td>Haufe</td>
<td>Daily physical activity at pulse pressure above an individual threshold in patients with continuous flow left ventricular assist devices – a feasibility study</td>
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<tr>
<td>CORE_6</td>
<td>Schröder Heurich</td>
<td>The role of endothelial progenitor cells in the pathophysiology of cardiovascular disease after transplantation</td>
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<tr>
<td>CORE_7</td>
<td>Heinrich Lenzen Salbach</td>
<td>Biliary microbiota and its role in ischemic type biliary lesion (ITBL) in patients after liver transplantation</td>
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<tr>
<td>CORE_8</td>
<td>Pflugrad</td>
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<tr>
<td>CORE_9</td>
<td>Glahn</td>
<td>The leptin-hypothalamus-liver axis in ethanol-induced liver cirrhosis – changes through transplantation and possible link to relapse</td>
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<tr>
<td>CORE_10</td>
<td>Bertram</td>
<td>Introduction and testing of a medication event monitoring system (MEMS) in kidney transplant patients</td>
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<tr>
<td>CORE_11</td>
<td>Deniz</td>
<td>INNOCOR as VAD Therapy Optimization</td>
</tr>
</tbody>
</table>

**Students**

- KinStrucMed Franke
  Dyadic impact on adherence after renal transplantation
- KinStrucMed Goede
  Neurotoxic side effects of calcineurin inhibitors (CNI) in patients after liver transplantation: a quantitative MRI study

**Core Facilities**

- Immune Monitoring Falck
- GMPDU Köhl
- Translational Strategies Thurn
- Quality Management & HF Schrem
March 8th, 2018

Oral presentations from selected abstracts

Prevalence of gingivitis and periodontitis in renal transplant recipients
Jasmin Grischke, Hannover

Impact of Emotion Regulation and Emotional Arousal on Quality of Life and Adherence of Couples after Kidney Transplantation
Lúisa Peters, Hannover

Sex differences in subclinical cardiovascular organ damage in renal transplant recipients
Bianca Borchert-Mörlins, Hannover

12:00 Lunch break with Poster session
(in cooperation with IFB-Tx investigators)

14:00 Gender differences at the microlevel
Tanja Zimmermann
Hannover, Germany

14:30 Policy conclusions
Birgit Babitsch
Osnabrück, Germany

15:00 Final remarks
Anette Melk and Christine Falk
Hannover, Germany

15:30 Coffee break

16:00 IFB-Tx Symposium
Perspectives in Transplantation
March 8th, 2018

Session III Immunological Aspects

Chairs: Lori West, Edmonton
        Christine Falk, Hannover

09:00  HLA antibodies and more
        Frans Claas
        Leiden, Netherlands

09:30  The Impact of Sex on Alloimmunity
        Ashley Lau
        Boston, USA

10:00  Coffee break

Session VI Implementing Sex/Gender in Research and Policies

Chairs: Birgit Babitsch, Osnabrück
        Siegfried Geyer, Hannover

10:30  How to address sex/gender in basic and clinical research
        Lori West
        Edmonton, Canada

11:00  Oral presentations from selected abstracts

        Survival after heart, lung and combined heart-lung transplantation under gender specific view using Eurotransplant data bank
        Sandra Eifert, Munich

        Gender has no impact on the occurrence of posttransplant encephalopathy after liver transplantation
        Meike Diks, Hannover

        Risk Factors for Arterial Hypertension in Pediatric Renal Transplant Recipients Depend on Pubertal Status and Sex: A Longitudinal Analysis of the CERTAIN Registry
        Bernhard M.W. Schmidt, Hannover
Session II  Organ-specific Aspects

Chairs:  Frans Claas, Leiden
         Anette Melk, Hannover

15:15  Pediatric solid organ transplantation
       Anne Dipchand
       Toronto, Canada

15:45  Lung
       Mark Greer
       Hannover, Germany

16:15  Coffee break

16:30  Kidney
       Marion Haubitz
       Fulda, Germany

17:00  Liver
       Marina Berenguer
       Valencia, Spain

17:30  Stem cell transplantation
       Hans Messner
       Toronto, Canada

19:00  Speakers’ dinner
12:00  Greetings
Sabine Johannsen
State Secretary, Ministry of Science
and Culture of Lower Saxony
Christopher Baum
President, Hannover Medical School

12:30  Facts and myths on sex and gender in transplantation
Interactive session (EDU Vote)
Anette Melk and Christine Falk
Hannover, Germany

Session I  Epidemiological Facts
Chairs: David Gjertson, Los Angeles
       Bernhard Schmidt, Hannover

13:15  Eurotransplant registry data
Undine Samuel
Leiden, Netherlands

13:45  UNOS registry data
David Gjertson
Los Angeles, USA

14:15  Coffee break

14:45  ANZDATA
Anette Melk
Hannover, Germany

15:00  Claims data
Siegfried Geyer
Hannover, Germany
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Geschlecht - Macht - Wissen*
Niedersächsisches Ministerium für Wissenschaft und Kultur

MHH Hannover Medical School
UNIVERSITÄT Osnabrück

IFBTx Integrated Research and Treatment Center Transplantation
SFB 738

Federal Ministry of Education and Research
Equal Opportunities Office at MHH

Dear colleagues

We invite you to join us for an interactive workshop on sex- and gender-specific issues in transplantation as important, but potentially under-recognized factors determining patient and transplant outcomes.

In 2015 the National Institute of Health (NIH) launched a notice stating the expectation that “sex as a biological variable will be factored into research designs, analyses, and reporting in vertebrate animal and human studies.” The recognition of potential differences and their impact for science has been an important step forward. It reinforces the establishment of still mostly unavailable but necessary scientific insights. While the NIH motivates researchers to consider sex, it also acknowledges the importance of gender for health and disease processes. Sex refers to the biological and physiological differences; gender is seen as a social concept. Nevertheless, both are interrelated and potentially inseparable.

Our workshop starts by providing epidemiological findings on access and outcome in transplantation, followed by evaluating underlying and causative factors for potential differences. We discuss not only how to implement sex/gender in basic and clinical research proposals, but also how to translate generated evidence into guidelines and policies. Throughout the workshop we take a sex- and gender-based perspective, being aware that many times we may discuss sex rather than gender due to data limitations.

We look forward to presenting a comprehensive overview of the current evidence that intends to dispel existing myths on sex- and gender-specific questions in transplantation. Finally, we expect to identify areas where more basic and/or clinical research is needed.

*This workshop is part of a collaborative project between Hannover Medical School and the University Osnabrück that addresses known and potentially only assumed differences between female and male renal transplant patients. The project is funded within the program “Geschlecht-Macht-Wissen” by the Ministry of Science and Culture of Lower Saxony.
Equally interchangeable?  
How sex and gender affect transplantation  
Biomedical and Socio-cultural  Aspects in Transplantation - Facts and Myths - 
International Workshop  
March 7-8, 2018