Supplemental Material

The Histological Picture of Indication Biopsies in the First 2 Weeks after Kidney Transplantation: An Observational Single-Center Cohort Study

Elisabet Van Loon^{1,2}, Evelyne Lerut^{3,4}, Aleksandar Senev^{1,5}, Maarten Coemans^{1,6}, Jacques Pirenne^{1,7}, Diethard Monbaliu^{1,7}, Ina Jochmans^{1,7}, Mauricio Sainz Barriga^{1,7}, Katrien De Vusser^{1,2}, Amaryllis H. Van Craenenbroeck^{1,2}, Ben Sprangers^{1,2,8}, Marie-Paule Emonds^{1,5}, Dirk Kuypers^{1,2}, Maarten Naesens^{1,2}

¹Department of Microbiology, Immunology and Transplantation, KU Leuven, Leuven, Belgium;

²Department of Nephrology and Renal Transplantation, University Hospitals Leuven, Leuven, Belgium;

³Department of Imaging and Pathology, KU Leuven, Leuven, Belgium;

⁴Department of Pathology, University Hospitals Leuven, Leuven, Belgium.

⁵Histocompatibility and Immunogenetics Laboratory, Red Cross-Flanders, Mechelen, Belgium;

⁶Leuven Biostatistics and Statistical Bioinformatics Centre, Department of Public Health and Primary Care, KU Leuven, Leuven, Belgium;

⁷Department of Abdominal Transplantation Surgery and Coordination, University Hospitals Leuven, Leuven, Belgium

⁸KU Leuven Laboratory of Molecular Immunology, Rega Institute, Leuven, Belgium;

Table of Contents

Tables:

- **Supplemental Table 1:** Demographics for the cohort with an early indication biopsy within the first 14 days post-transplant, with or without delayed graft function (DGF).
- **Supplemental Table 2:** Baseline risk factors for DGF in univariate and multivariate analysis.

Figures:

Supplemental Figure 1: Visualization of interaction effect between donor age and
anastomosis time for delayed graft function. The left panel illustrates the log(odds) of DGF
with increasing anastomosis time per predefined donor age category. The right panel
illustrates the increase in probability of DGF with increasing anastomosis time, categorized
by donor age.

| Supplemental Table 1. Demographics for the cohort with an early indication biopsy within the first 14 days post-transplant, with or without delayed graft function (DGF). | | | |
|---|----------------------------|-------------------------------|--|
| | Biopsy with DGF (N=101) | Biopsy without DGF (N=190) | |
| Recipient characteristics | | | |
| Age (y), mean ± SD | 57 ± 12 | 53 ± 14 | |
| Recipient BMI at time of transplantation (kg/m²), mean ± SD | 26.6 ± 4.9 | 25.5 ± 4.5 | |
| Sex (male), n (%) | 63 (62%) | 116 (61%) | |
| Caucasian ethnicity, n (%) | 101 (100%) | 189 (100%) | |
| Pretransplant diabetes mellitus, n (%) | 28 (28%) | 33 (17%) | |
| Repeat transplantation, n (%) | 26 (26%) | 26 (14%) | |
| Donor characteristics | | | |
| Age (y), mean ± SD | 51 ± 15 | 50 ± 15 | |
| Sex (male), n (%) | 59 (58%) | 87 (46%) | |
| Type of donor | | | |
| Living donor, n (%) | 0 (0%) | 15 (8%) | |
| Donation after brain death, n (%) | 78 (77%) | 144 (76%) | |
| Donation after cardiac death, n (%) | 23 (23%) | 31 (16%) | |
| Transplant characteristics | | | |
| Cold ischemia time (h), mean ± SD | 16.4 ± 5.2 | 13.4 ± 5.7 | |
| Asystolic ischemia time (min) mean ± SD (Only in DCD donors) | 4.4 ± 9.5 | 3.1 ± 7.9 | |
| Anastomosis time (min) mean ± SD | 37.1 ± 9.2 | 34.8 ± 7.4 | |
| Total HLA-A,-B,-DR mismatches, mean ± SD | 3.0 ± 1.1 | 2.9 ± 1.4 | |
| Immunosuppression regimen: TAC-MPA-CS, n (%) | 97 (96%) | 169 (89%) | |
| Induction therapy, n (%) | 54 (54%) | 67 (35%) | |
| Pretransplant donor-specific anti-HLA antibodies, n (%) | 22 (22%) | 32 (17%) | |

| | Unadjusted | Multivariable* | |
|----------------------------|---------------------|---------------------|--|
| | Onaujusteu | Widitivariable | |
| | Odds ratio (95% CI) | Odds ratio (95% CI) | |
| Donor age (per year) | 1.02 (1.01-1.03) | 1.01 (1.00 – 1.03) | |
| Living donor vs. donation | 0.08 (0.01 – 0.55) | 0.25 (0.03 – 2.00) | |
| after brain death | | | |
| Donation after circulatory | 1.45 (0.97 – 2.17) | 0.93 (0.42– 2.06) | |
| death vs. donation after | | | |
| brain death | | | |
| Cold ischemia time (h) | 1.10 (1.06-1.13) | 1.08 (1.04 – 1.12) | |
| Asystolic ischemia time | 1.02 (1.01 – 1.04) | 1.03 (0.99 – 1.07) | |
| (min) | | | |
| Anastomosis time(min) | 1.04 (1.02 – 1.06) | 1.03 (1.01 – 1.05) | |
| HLA A-B-DR-mismatches | 1.11 (0.99-1.26) | 1.14 (0.99 – 1.31) | |
| (per mismatch) | | | |
| Pretransplant HLA-DSA | 2.27 (1.46-3.52) | 1.66 (0.97 – 2.83) | |
| (present vs. absent) | | | |

Adjusted for recipient age, recipient BMI at transplantation, recipient and donor sex, pretransplant diabetes
 mellitus, repeat transplantation, immunosuppressive regimen at time of transplantation and induction therapy.

Supplemental Figure 1. Visualization of interaction effect between donor age and anastomosis time for delayed graft function. The left panel illustrates the log(odds) of DGF with increasing anastomosis time per predefined donor age category. The right panel illustrates the increase in probability of DGF with increasing anastomosis time, categorized by donor age.

