P-7.14
TREGS MONITORING BEFORE AND AFTER RENAL TRANSPLANTATION

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Introduction: T regulatory lymphocytes (Tregs) are considered pivotal in immune response homeostasis and the induction of graft tolerance. They are CD4+CD25+ T cells expressing the transcriptional factor FoxP3. Moreover, CD25 is the therapeutic target of the chimeric monoclonal antibody basiliximab which is extensively used as part of the induction immunosuppression therapy. As immunosuppressive protocols might affect Tregs as well, we studied FoxP3 expression before and after renal transplantation.

Materials and Methods: Subpopulations of CD4+CD25+ CD4+CD25+FoxP3+ T lymphocytes were measured, by flow cytometry, in 34 end stage renal disease patients before renal transplantation (26 from cadaveric donors). All patients received basiliximab and triple immunosuppressive regimen as a standard therapeutic protocol. In 25 of those patients, the same measurements were repeated 3 months after the transplantation.

Results and Discussion: Before transplantation the proportion of CD4+CD25+FoxP3+ T lymphocytes was 2.9 ± 1.3% of the CD4+ lymphocytes. Absolute numbers of CD4+CD25+FoxP3+ were inversely related to patient age (r=-0.44, p=0.008) and dialysis vintage (r=-0.39, p=0.023). In the measurement 3 months after the transplantation, the proportion of Tregs remained stable at 2.8 ± 1.2% respectively, while their absolute number increased significantly from 18±12 to 26±17 μ/L (p=0.042). The proportion of CD25+ reduced from 6±2.5% of the CD4+ lymphocytes before transplantation to 4.9±2%, 3 months later.

Conclusion: Despite immunosuppression therapy targeting CD25+ helper T cells early at renal transplantation, the absolute number of Tregs is increased 3 months after transplantation.

P-8.03
COMPREHENSIVE ASSESSMENT OF DECEASED DONOR KIDNEYS WITH CLINICAL CHARACTERISTICS, PRE-IMPLANT BIOPSY HISTOPATHOLOGY AND HYPOTHERMIC MECHANICAL PERFUSION PARAMETERS IS HIGHLY PREDICTIVE OF DELAYED GRAFT FUNCTION

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Background: Aside from a living relative, donation after an individual’s death has become the only source of transplantable organs in China since 2015, which only minimally alleviates the shortage of organ sources for ill patients. Due to the current high demand for transplant tissue, an increasing proportion of kidney donors are considered extended criteria donors (ECD), which results in a higher incidence of delayed graft function (DGF) in organ recipients. Therefore, it is important to more fully investigate the risk factors that lead to DGF, and establish a comprehensive prediction system to better assess donor kidney quality before transplantation in order to minimize any delay in renal function recovery.

Methods: A total of 333 Donation after Cardiac Death (DCD) kidney transplant recipients were included in this retrospective study. Both univariate and multivariate analyses were used to analyze the correlation between donor scores, pre-implant pathology scores, and hypothermic mechanical perfusion (HMP) variables with DGF occurrence. Receiver operating characteristic (ROC) curves were used to analyze the predictive value of variables on DGF posttransplant. This cohort study was approved by the Institutional Review Board/Ethics of the First Affiliated Hospital of Xi’an Jiaotong University and was conducted in accordance with the principles of Declaration of Helsinki.

Results: The donor clinical scores, kidney histopathologic Remuzzi scores and HMP parameters (flow and resistance index) were all correlated. 46 recipients developed DGF postoperatively, with an incidence of 13.8% (46/333). Multivariate logistic regression analysis of the kidney transplants revealed that the independent risk factors of DGF occurrence post-transplantation included donor score (OR=1.12, 95% CI: 1.06-1.19, p<0.001), Remuzzi score (OR=1.21, 95% CI: 1.02-1.43, p=0.029) and acute tubular injury (ATI) score (OR=4.72, 95% CI: 2.32-9.60, p<0.001). Prediction of DGF with receiver operating characteristic curve (ROC) showed that the area under the curve (AUC) of donor score, Remuzzi score, ATI and HMP resistance index were all lower than 0.80.

Co-evaluation of DGF occurrence

However, AUC was increased to 0.89 when all variables were considered together.
Conclusions: Our analysis shows that the combination of donor clinical information, kidney pre-implant histopathology and HMP parameters provide a more accurate prediction of DGF occurrence post-transplantation than any of the measures alone. These findings have the potential to increase the occurrence of successful kidney transplants with fewer complications.

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P-8.04
THE CAUSES AND CLINICAL SIGNIFICANCE OF CELLULAR OR FIBROCELLULAR CRESCENTS IN RENAL ALLOGRAFT
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Introduction: Renal transplantation is a treatment to chronic glomerular disease. However, the clinical course of renal allograft varies. A minority of allograft glomeruli has demonstrated crescents, either with or without other renal pathology. Crescentic glomerulonephritis (CGN) is categorized by immunohistology into anti-GBM CGN, immune complex CGN, or pauci-immune CGN. Crescents also occur in categories of glomerular injury that are not included in the three major categories of crescentic glomerulonephritis. Characteristics of crescents or CGN have been well documented, but little are known of their etiology in allograft kidney. Herein, we investigated the etiologies of crescents in allograft kidney.

Materials and Methods: A retrospective analysis was performed in cases of kidney transplant biopsies diagnosed with either cellular, fibrocellular, or fibrous crescent between January 2010 and December 2019. After excluding time-zero biopsy, the total number of allograft biopsy was 1602. Thirty-nine renal allograft biopsies showing crescents were collected. The number of crescents more than 10% of the total glomeruli were selected and the total cases were 27. Clinical and histological data were reviewed via electronic medical record.

Results: All biopsies showed focal crescents (mean 18.39% glomeruli, range 10-43%). Twenty-one cases showed cellular/fibrocellular crescents and 6 cases had fibrous crescents only. One case was diagnosed as recurrent pauci-immune CGN with previous same diagnosis in the native kidney. Crescents in 20 cases were associated with immune-complex. Sixteen were diagnosed as IgA nephropathy; 3 were immune-complex mediated CGN, and 1 was membranous nephropathy. Native kidney biopsy was available in 9 out of 20 cases. Six cases were IgA nephropathy, 1 was membranoproliferative glomerulonephritis (MPGN), 1 was chronic glomerulonephritis, and the other was end-stage renal disease without a specific diagnosis. The remaining 6 cases were not in the major categories of CGN; 2 cases showed chronic calcineurin inhibitor toxicity, 2 cases showed chronic rejection, 1 case showed chronic calcineurin inhibitor toxicity and chronic antibody-mediated rejection, and 1 case showed mild tubulitis and mild arteriosclerosis. One case was available for the native kidney diagnosis which was focal segmental glomerulosclerosis (FSGS). Pretransplantation anti-neutrophil cytoplasmic antibody results were available for 2 patients and were negative.

Discussion: CGN is rare in allograft kidney. In our center, most of the renal allograft CGN were immune-complex mediated and majority of them were IgA nephropathy. The most prevalent diagnosis of native kidney was also IgA nephropathy. The graft outcome in allograft CGN according to different etiologies are not well known and yet to be studied.

Conclusion: Glomerular crescents in allograft kidney has different etiologies. Most of them are associated with immune-complex and IgA nephropathy.