References:
1. Parekh J, Ko C, Lappin J, Greenstein S, Hirose R: A Transplant-Specific Quality Initiative-Introducing TransQIP: A Joint Effort of the ASTS and ACS. Am J Transplant 17:1719-1722, 2017
2. Parekh JR, Hirose R, Foley DP, Grieco A, Cohen ME, Hall BL, et al: Beyond death and graft survival-Variation in outcomes after kidney transplantation, besides non-immunological factors, also the pre-transplant presence of HLA antibodies or DSA, the incidence of biopsy-proven rejections (DSA, HR=7.39, P<0.001) were present prior to transplantation. In the presence of HLA antibodies (HR=4.75, P<0.001) or donor-specific HLA antibodies (DSA, HR=4.75, P<0.001), the risk of death-censored graft loss increased further if HLA antibodies pre-transplant, diabetes mellitus as original disease, cold ischemia time ≥18 hours, and time on dialysis >5 years were associated with an increased risk of DGF. DGF alone doubled the risk for all-cause graft loss, more due to impaired death-censored graft than patient death. In DGF patients, the risk of death-censored graft loss increased further if HLA antibodies in DGF. On the other hand, DGF risk might have increased due to growing use of kidneys from elderly donors. The aim of the present multi-center study was to identify the immunological and non-immunological predictors of DGF and to determine its influence on outcome, presence and absence of HLA antibodies in the new era of transplantation.
3. Introduction: We reported previously that early adverse events in deceased donor kidney transplantation, such as delayed graft function (DGF) and rejection episodes, are associated with pre-transplant presence of HLA antibodies and that patients with adverse events show significantly impaired graft survival rates. In the meantime, the introduction of sensitive antibody detection techniques is expected to have diminished the involvement of overlooked HLA antibodies in DGF. On the other hand, DGF risk might have increased due to growing use of kidneys from elderly donors. The aim of the present multi-center study was to identify the immunological and non-immunological predictors of DGF and its influence on outcome, presence and absence of HLA antibodies in the new era of transplantation.
4. Methods: 1,724 patients who received a deceased donor kidney transplant during 2008–2017 and on whom a pre-transplant serum sample and the information on immediate function within the first 24 hours after transplantation, dialysis during the first week, and biopsy-proven rejection during the first 3 months were available. Graft survival after day 7 during the first 3 years post-transplant was analyzed by multivariable Cox regression. Predictors of DGF and influence of DGF and pre-transplant HLA antibodies on biopsy-proven rejections during days 8–90 were determined by multivariable logistic regression. DGF was defined as either no graft function during the first 24 hours and/or dialysis during the first week. In 44% of cases, we were informed by the centers on the presence or absence of pre-transplant donor-specific antibodies (DSA) as determined by single antigen technique.
5. Results and Discussion: Donor age ≥50 years, simultaneous presence of HLA class I and II antibodies pre-transplant, diabetes mellitus as original disease, cold ischemia time ≥18 hours, and time on dialysis >5 years were associated with an increased risk of DGF. DGF alone doubled the risk for all-cause graft loss, more due to impaired death-censored graft than patient survival. In DGF patients, the risk of death-censored graft loss increased further if HLA antibodies (HR=1.75, P<0.001) or donor-specific HLA antibodies (DSA, HR=1.75, P<0.001) were present prior to transplantation. In the presence of HLA antibodies or DSA, the incidence of biopsy-proven rejections increased significantly in patients with as well as without DGF. Recipients without DGF and without biopsy-proven rejections during the first 3 months had the highest fraction of patients with good kidney function at year 1 post-transplant, whereas patients with both DGF and rejection showed the lowest rate of good kidney function. Our data indicate that, in the current era of transplantation, besides non-immunological factors, also the pre-transplant presence of HLA class I and II antibodies increase the risk of DGF.