2657. Clinical Prediction Tool for Multidrug-Resistant Organisms Among Deceased Donors at the Time of Donor Evaluation

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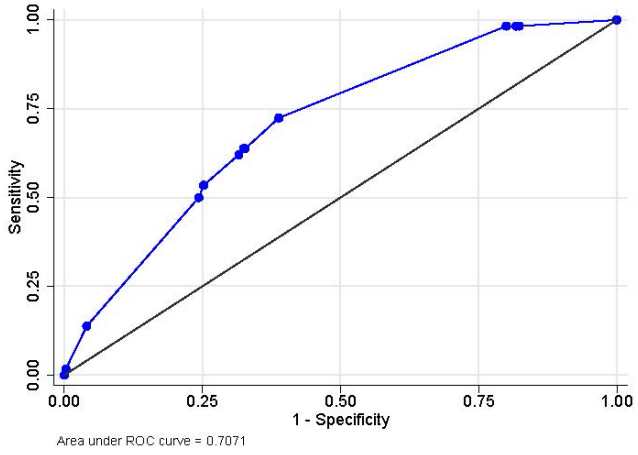
Background: Transplant guidelines recommend exercising caution when considering organs that may be infected or colonized with multidrug-resistant organisms (MDROs) and treating the organ recipient with perioperative antibiotics active against the donor MDRO. Unfortunately, donor MDROs are often identified only after transplantation. We developed a clinical prediction tool to stratify donors' MDRO risk at the time of donor evaluation.

Methods: A retrospective cohort study was conducted at four transplant centers in Philadelphia between January1, 2015 and June 30, 2016. All deceased organ donors who donated ≥1 organ to one of the centers were included. Multivariate logistic regression was used to determine predictors of donor MDROs, including methicillin-resistant *S. aureus* (MRSA), vancomycin-resistant enterococci, extended-spectrum cephalosporin-resistant (ESC-R) or carbapenem-resistant Enterobacteriaceae, multidrug-resistant (MDR) *P. aeruginosa*, or MDR *Acinetobacter* species. Manual forward selection was utilized to maximize the area under the receiver operating characteristic curve (AUC). A scoring system was developed based on the odds ratios for each covariate. Internal validity was assessed using the Hosmer–Lemeshow statistic, specificity, and negative predictive value (NPV).

Results: Of 440 total donors, 62 (14%) grew MDROs on culture. The majority were MRSA (40) or ESC-R Enterobacteriaceae (20). The most parsimonious model that predicted donor MDROs included: a terminal hospitalization ≥ 7 days (1 point), ≥ 2 antibiotics administered during the terminal hospitalization (1 point), receipt of extracorporeal membrane oxygenation (ECMO) (1 point), and presence of opacities on donor chest imaging concerning for lower respiratory tract infection (2 points). With this scoring system, the maximum attainable score is 5; any donor with a score of ≥ 2 points would be considered high risk for an MDRO, with an AUC of 0.71, specificity of 99%, and NPV of 86%. The Hosmer–Lemeshow $P = 0.68$.

Conclusion: The risk of an MDRO among deceased organ donors can be predicted using the above scoring system. This tool will inform decisions about organ utilization and perioperative prophylaxis for solid-organ transplant recipients.



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2658. Meningitis in Kidney Transplant Recipients: *TransMéninges*, a French Multicentric Retrospective Cohort Study

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Background: The management of meningitis requires the prompt introduction of high-dose probabilistic anti-infectious therapy. The literature reporting on meningitis in kidney transplant recipients (KTR) is scarce and no recommendation exists for this specific population.

Methods: We retrospectively included all adult KTRs diagnosed with meningitis (cerebro-spinal fluid (CSF) cell count >10/mm^3 or positive fungal antigen or direct examination) between 2007 and 2018 in 16 French hospitals. Clinical, biological, and therapeutic data, and 1-year kidney and patient survival were collected.

Results: Meningitis occurred in 134 KTRs (mean age 57+/11.8 years, 56% male), after a median time of 27 months (IQR 8–65); 25% of patients received an immunosuppressive treatment before kidney transplantation, induction treatment included lymphocyte-depleting antibodies in 63%, and 53% presented diabetes (34% before and 19% after the transplantation). The etiologies included *Cryptococcus neoformans* (30%), Herpesviridae (22%, including Varicella-Zoster Virus 15%), idiopathic forms (11%), Gram-negative bacilli (8% of which 20% produced an extended spectrum β-lactamase), %), infusion of intravenous immunoglobulins (6%), post-transplant lymphoproliferative disorders (5%), *Aspergillus fumigatus* (4%), *Listeria monocytogenes* (4%), Enterovirus (4%), and *Mycobacterium tuberculosis* (3%).

The most common symptoms were fever (82.5%), headaches (75%), encephalitis (55%), and convulsion (22.5%). CSF hypercellularity (found in 92% of the cases) was lymphocytic in 65% of the cases and neutrophilic in 35%. Initial anti-infectious therapy was inappropriate in 27% of the cases. One-year patient, graft, and death-censored graft survival rates were 84%, 76%, and 89%, respectively.

Conclusion: Meningitis after kidney transplantation encompasses a wide range of causes, with *C. neoformans* and VZV explaining more than 50% of the cases. Gram-negative bacilli are the most represented bacteria with a high rate of antimicrobial resistance. Treatment guidelines should be reconsidered in the specific population of KTRs as the etiology greatly differs from what is observed in the general population.

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2659. Retrospective Review of Biopsy Proven Acute Graft Pyelonephritis in Renal Transplant Patients

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Background: There are few studies of histologic acute graft pyelonephritis (HAGPN) following kidney transplant (KT). The goals of this study are to determine incidence, identify potential risk factors and describe outcomes of HAGPN in a large cohort of KT recipients.

Methods: Renal allograft biopsies of all patients undergoing first KT at our medical center between 2008 and 2017 were reviewed. HAGPN was defined as the presence of neutrophils within the interstitium and tubules (casts). Medical charts of patients with HAGPN were reviewed. Episodes of bacteriuria (≥10:5 cfu/mL growth in culture) were classified as urinary tract infection (UTI) or asymptomatic bacteruria (ASB) based upon documented symptoms. An episode of acute rejection was defined as pulse parenteral immunosuppressive therapy for histologic evidence of rejection.

Results: HAGPN was identified in 43 of 1,391 (3.1%) KT recipients at a median of 298 days post-transplant. There were no significant differences between recipient age or gender, donor age or transplant type (deceased, living related, living unrelated) between recipients with and without HAGPN. Urologic malformation was diagnosed in 14 (33%) by day 30 post-transplant. Twenty-five (58%), 17 (40%), and 13 (30%) sustained one or more episodes of acute rejection, UTI and ASB, respectively, prior to HAGPN. At diagnosis of HAGPN, 28 (65%), 7 (16%), and 16 (37%) had histologic evidence of rejection, UTI and ASB, respectively. Twenty-two (51%) and 37 (86%) were treated with pulse immunosuppression and antibiotics, respectively. Median nadir serum creatinine before HAGPN was 1.1 mg/day while median serum creatinine at 6 and 12 months after HAGPN were 1.5 and 1.6. Three patients (7%) developed graft failure within 1 year after HAGPN.

Conclusion: HAGPN is an infrequent complication of KT. A majority of patients with HAGPN have histologic evidence of rejection and either UTI or ASB at diagnosis, though over 40% have neither UTI nor ASB. When rejection accompanying HAGPN is routinely treated with pulse immunosuppression and antibiotic therapy is administered, graft function is preserved for most patients but a minority (7%) loses graft function within 1 year. Potential risk factors to be assessed in further study include post-transplant urologic dysfunction, acute rejection and UTI.

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2660. Infection Complications Following Mismatched Allogeneic Hematopoietic Cell Transplantation

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