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Strongyloides stercoralis Infection Incidence, Risk Factors and Outcomes Among Solid Organ Transplant Candidates and Recipients; a Florida Center Experience

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2015. Data collection included patient demographics, co-morbidities, transplant data, infection event in 200 days of LT and death. Severe infection was defined as the presence of sepsis, septic shock, or sepsis with multi-organ failure.

Results. A total of 255 patients met inclusion criteria with median follow-up of 690 days (range 1– 2095). The mean age was 67.6 years (SD 2.4). Majority were male (67%) and white (85%). Frequent indications of LT were hepatocellular carcinoma (46%) and hepatitis C (32%). The median MELD score at the time of LT was 22 (range 6–47). Only 3% of recipients received thymoglobulin for induction. Acute rejection within 200 days of LT occurred in 31 (12%); graft failure in 8 (3%); and re-transplantation in 5 (2%). One hundred twenty-seven patients (50%) developed 274 infections; 63 (25%) had 1 infection and 64 (25%) had ≥ 2 infections. Median time to first infection after LT was 26 days [IQR 9–72]. Out of 274 infections, 182 (66%) occurred in <90 days. Severe infection occurred in 40/127 (31%). Cystitis (16%), colitis (12%), and pneumonia (11%) were common. Bacterial, viral, and fungal infections were 61%, 22%, and 7%, respectively. Common bacterial pathogens were *Enterococcus* sp. (15%), *Clostridium difficile* (12%) and *E. coli* (8%). Thirty-five (13%) opportunistic infections (OI) occurred due to *Cytomegalovirus* [CMV] (26), *Candida* (4), *Cryptococcus* (3), HHV-8 (1), and *Aspergillus* (1). Mortality due to infection was 3%, while all-cause mortality was 12%. Frequency of discharge to sub-acute or extended care facility after infection was 23%.

Conclusion. Infections are common in this older LT cohort and occurred mainly in the early post-LT period. OIs were infrequent except for CMV. Despite concerns for immunosuppression and immunosenescence, the outcome of infection within the 200 days of LT was overall favorable.

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132. Solid Organ Transplantation (SOT) and Data Mining: Bloodstream Infections (BSI) Have a Significant Impact on One-Year Survival, and qSOFA ≥ 2 Predicts 30-Day Mortality

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Session: 41. Infections in Transplantation
Thursday, October 5, 2017: 10:30 AM

Background. We created a retrospective and prospective database of SOT recipients using innovative data mining tools. This study describing the epidemiology of BSI in SOT serves as a proof of concept of such techniques in clinical research.

Methods. The design of the study was a retrospective, single-center, cohort study. Data mining tools were used to extract information from the electronic medical record and merged it with data from the SRTR (Figure 1). First SOT from January 1, 2010 to December 31, 2015 were included. Charts of subjects with positive blood cultures were manually reviewed and adjudicated using CDC/NHSN and SCCM/ESICM criteria. The 1-year cumulative incidence was calculated using the Kaplan–Meier method. Cox proportional hazards models were used to identify risk factors for BSI and 1-year mortality. BSI was analyzed as a time-dependent covariate in the mortality model. Fisher's exact test and chi-square were used to identify risk factors for 30-day mortality and MDRO.

Results. A total of 917 SOT recipients met inclusion criteria. Seventy-five patients experienced at least one BSI. The cumulative incidence was 8.4% (95% CI 6.8–10.4) (Figure 2). The onset of the first BSI episode was: 30 episodes (40%) <1 month, 33 (44%) 1–6 months, and 12 (16%) >6 months. The most common pathogens were *Klebsiella* sp. (16%), Vancomycin-resistant *E. faecium* (12%), *E. coli* (12%), CoNS (12%), and *Candida* sp. (9.3%). Nineteen isolates (25%) were identified as MDRO; the risk of MDRO was highest <1 month compared with 1–6 and >6 months (44.8 vs. 12.1 vs. 16.7; $P = 0.01$). The most common source of BSI was CLABSI (29%) (Figure 3). In multivariable analysis, the risk of BSI was associated with organ type (HR [95% CI] = Multiorgan 3.5 [1.1–11.6], liver 2.5 [1.1–5.4], heart 2.4 [1.1–5.1]) and acquisition of a BSI was associated with a higher 1-year mortality (HR = 8.7 [5.1–14.7]). In univariable analysis, a polymicrobial BSI (14.7 vs. 57.1%; $P = 0.02$), qSOFA ≥ 2 (0.0 vs. 25.5%; $P = 0.02$) and septic shock (3.9 vs. 52.2%; $P < 0.001$) were associated with an increased risk of death at 30 days.

Conclusion. A BSI significantly affects the 1-year survival of SOT recipients. A qSOFA ≥ 2 can be used to identify patients at risk for death. Additionally, this study illustrates the potential of data mining tools to study infectious complications.

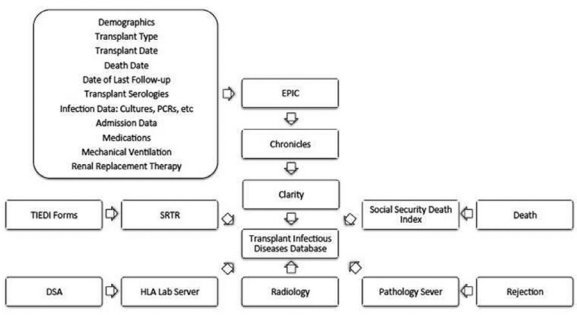
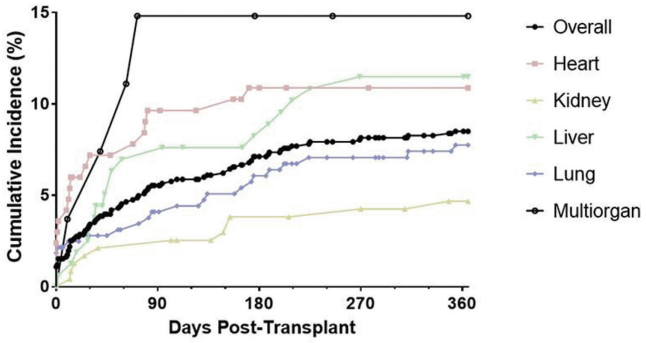


Figure 1: Transplant Infectious Diseases Database – Data Flow



	All	Heart	Kidney	Liver	Lung	Multiorgan
Cumulative Incidence% [95% CI]	8.4 [6.8-10.4]	10.9 [7.0-16.7]	4.7 [2.6-8.3]	11.5 [7.4-17.6]	7.8 [5.3-11.4]	14.8 [5.8-34.8]

Figure 2: Cumulative incidence of BSI at 1 year post-transplant

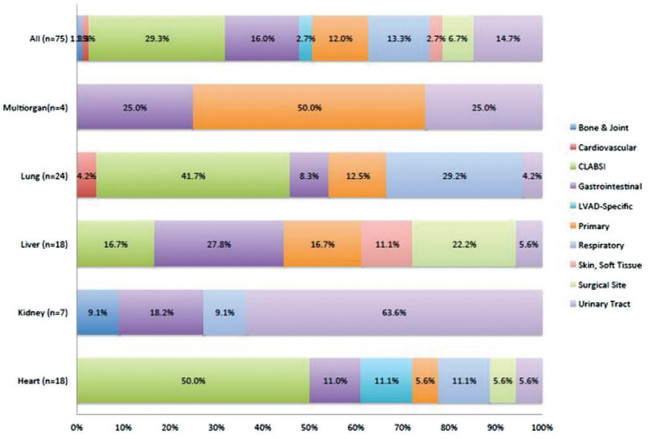


Figure 3: Source of BSI by CDC/NHSN Criteria by Transplant Type

Disclosures. **All authors:** No reported disclosures.

133. *Strongyloides stercoralis* Infection Incidence, Risk Factors and Outcomes Among Solid Organ Transplant Candidates and Recipients; a Florida Center Experience

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Session: 41. Infections in Transplantation
Thursday, October 5, 2017: 10:30 AM

Background. Most infections of *Strongyloides stercoralis* are asymptomatic but can be fulminant in the immunosuppressed. Fatal infections in transplant patients have been reported in United States but incidence estimates are lacking. Our protocol for Strongyloides until 2009 screened immigrants and those with travel history to endemic areas. In 2010, we began universal screening of SOT candidates due to a case of disseminated Strongyloidiasis in an unscreened lung transplant recipient with unknown risk factors. We calculated the incidence of *Strongyloides stercoralis* in our SOT candidates and associated risk factors, treatment, and outcomes since protocol change.

Methods. A retrospective review was performed of patients who underwent transplant evaluation from January 2014 to July 2016. Patients positive for *Strongyloides stercoralis* were reviewed for age, sex, ethnicity, place of birth, travel history, occupation, eosinophilia, treatment, and outcome. We report descriptive statistics.

Results. Of a total of 2,351 SOT patients, 116 tested positive (heart 33, lung 24, kidney 26, liver 31, pancreas 2) with an incidence of 4.9%. A total of 113 charts were available for review. The characteristics of the patients are summarized in Table 1. Fifty patients had traditional risk factors (44%) and 63 lacked them (56%). Eosinophilia was present in 15% of cases. Of those transplanted, 87% received prophylaxis and none developed active Strongyloidiasis.

Conclusion. Our results show that *S. stercoralis* infection has a relatively high incidence in SOT patients and universal screening identified a substantial number that otherwise would go undetected, placing the transplant patient at risk of a fatal, yet preventable complication.

Table 1. Characteristics of patients

Patient characteristics	Number	%
Total screened	2365	
Positive Strongyloides	116	4.9
Age group		
60–70 years	41	36
50–59 years	23	20
40–49 years	22	19
<40	27	24
Sex		
Male	90	80
Female	23	20
Ethnicity		
White	81	72
Hispanic	18	16
African American	14	12
Occupation with soil or water contact	21	19
Total SOT patients	38	87
Treated before SOT	33	97
Ivermectin	32	3
Albendazole	1	
Travel or birth outside United States	35	31
Puerto Rico	12	34
Caribbean and South America	10	29
Middle East	3	8
Africa	2	6
Europe and Australia	3	8
Asia	5	14
Eosinophilia >5%	17	15

Disclosures. **All authors:** No reported disclosures.

134. Investigation of a Contaminated, Nationally Distributed, Organ Transplant Preservation Solution — United States, 2016–2017

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Session: 41. Infections in Transplantation
Thursday, October 5, 2017: 10:30 AM

Background. In December 2016, bacterial contamination of an organ preservation solution (OPS) was reported by Transplant Center A in Iowa. Annually, >20,000 abdominal organs are transplanted in the United States; OPS is used for organ storage. We investigated the scope of OPS contamination and its association with adverse events in patients.

Methods. We assessed infection control practices related to OPS at Transplant Centers A and B in Iowa and the local organ procurement organization (OPO). We issued national notifications about OPS contamination and requested transplant centers to report product-related concerns or potential patient harm. Among transplant recipients at Center A, we compared adverse events (fever, bacteremia, surgical site infection, peritonitis, or pyelonephritis within 14 days of transplantation) during October–December 2015 with October–December 2016, the presumed window of exposure to contaminated OPS. Isolates from OPS were characterized.

Results. No infection control deficiencies were identified at Transplant Centers A, B, or the OPO. In January 2017, contaminated OPS from the same manufacturer was reported by Transplant Center C in Texas. Nationally, there were no reports of patient harm definitively linked to OPS. Post-transplant adverse events at Center A did not increase between fourth quarter 2015 (5/12 [42%]) and 2016 (2/15 [13%]). Organisms recovered from OPS included *Pantoea agglomerans* and *Enterococcus gallinarum* (Center A) and *Pseudomonas koreensis* (Center C). Five *Pantoea* isolates from ≥3 opened OPS bags were indistinguishable by pulsed-field gel electrophoresis. The OPS distributor issued recalls and suspended production. The US Food and Drug Administration identified deficiencies in current good manufacturing practices at manufacturing and distribution facilities, including inadequate validation of OPS sterility.

Conclusion. Bacterial contamination of a nationally distributed product was identified by astute clinicians. The investigation found no illnesses were directly linked to the product. Prompt reporting of concerns about potentially contaminated healthcare products, which might put patients at risk, is critical for swift public health action.

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135. Outcomes of Kidney Transplantation with a CMV Matching Allocation Schema

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Session: 41. Infections in Transplantation
Thursday, October 5, 2017: 10:30 AM

Background. Cytomegalovirus (CMV) infection continues to be a major cause of morbidity in kidney transplant recipients. The CMV donor-positive (D+)/recipient-negative (R−) serostatus pairing poses highest risk for CMV disease.

Methods. In September 2012, we adopted a CMV matching allocation policy at the centers served by our organ procurement organization, the Pacific Northwest Transplant Bank. CMV serostatus was used as a criterion in determining deceased donor kidney allocation, whereby R− kidney transplant recipients were preferentially paired with a D− organ, and R+ recipients with an R+ organ. We performed a retrospective analysis of CMV-related outcomes for 400 consecutive kidney recipients, 196 prior to (January 1, 2010– August 31, 2012) and 204 following (September 1, 2012–December 3, 2014) implementation of the CMV matching allocation schema at our center. We also looked at waitlist time for patients transplanted during the same period.

Results. The percentage of D+/R− transplants performed decreased from 17.3% to 2.5% ($P < 0.001$) after implementation of the CMV matching allocation strategy (Figure 1). CMV viremia decreased from 13.3% to 5.9% ($P = 0.0118$), and CMV syndrome or disease decreased from 9.2% to 2.9% ($P = 0.00859$) (Table 1). The percentage of patients treated for CMV infection overall decreased from 10.7% to 5.4% ($P = 0.0498$). Median days on the waitlist prior to transplantation increased from 793 (PRE) to 944 (POST) due to growing wait list size, but neither R− nor R+ patients appeared to be disadvantaged: wait times increased from 808.5 to 958 for the R− subset and from 777.5 to 933 for the R+ subset (Figure 2).

Conclusion. CMV disease occurred infrequently in our cohort, in the context of 6 months of valganciclovir prophylaxis post-transplant and post-prophylaxis pre-emptive monitoring strategy for our D+/R− recipients. Following implementation of an allocation schema that took CMV serostatus into account, the rate of CMV infection and antiviral treatment decreased significantly.