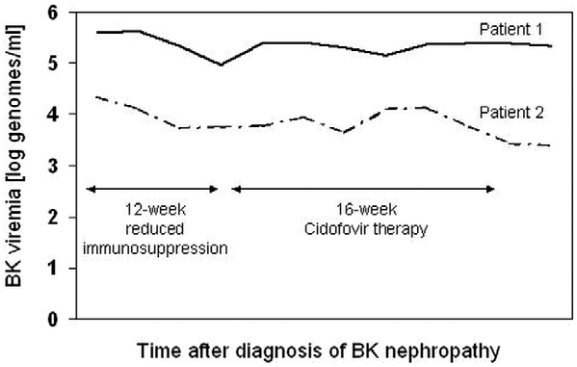
Objective: To assess the efficacy of low-dose Cidofovir in the treatment of BK virus associated nephropathy.
Method: Two adult kidney transplant recipients with biopsy-proven BK nephropathy and persistent high viremia (>10,000 copies/ml) despite 3-month reduction of immunosuppressive therapy were treated by Cidofovir 0.5 mg/kg fortnightly for a total of 16 weeks (8 doses). Clinical response was assessed by following BK viremia.
Results: No decrease in BK viremia was observed at any point during cidofovir therapy (see figure). Creatinine clearance remained stable during therapy and no side-effects of Cidofovir were observed.



Conclusions: Low-dose Cidofovir therapy was not associated with a clearance or with a significant decrease of BK viremia. This pilot study does not confirm previous reports suggesting clinical efficacy of Cidofovir for BK virus associated nephropathy.

28
No Detectable Indirect Effects of Late-onset *Cytomegalovirus* Disease after Valganciclovir (VGC) Prophylaxis in Kidney Transplant Recipients.

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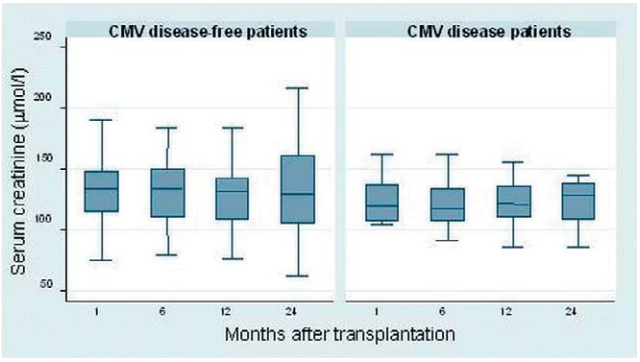
Background: *Cytomegalovirus* (CMV) disease remains an important cause of morbidity after kidney transplantation and has been associated with acute rejection, graft loss and other indirect effects. A 3-month course of VGC prophylaxis reduces the incidence of CMV disease. However, little is known about the indirect effects of late-onset CMV disease after VGC prophylaxis.
Objective: To evaluate the impact and indirect consequences of late-onset CMV disease after VGC prophylaxis in kidney transplant recipients.
Methods: Retrospective analysis of 61 consecutive adult kidney transplant recipient with positive CMV serology (donor or recipient) who received VGC prophylaxis for 3 months and completed a follow-up of at least 2 years post-transplantation. Patients who developed CMV disease within 1 year after transplantation were compared to CMV disease-free patients for renal function (plasma creatinine values) at 1, 6, 12 and 24 months and for the incidence of graft loss, acute rejection, diabetes, cancer and opportunistic infections.
Results: 8/61 (13%) patients developed CMV disease at a median of 131 days after transplantation (range: 98–220). The CMV incidence in D+/R- high risk patients was 6/18 (33%), while it was 2/43 (5%) in intermediate-risk patients ($p < 0.01$). All 8 patients were treated by oral valganciclovir (median 39 days; range: 19–119) with a complete resolution of CMV disease. As shown in the figure, there was



no difference in creatinine values between the two groups at any time during follow-up. There was no graft loss, and the incidence of acute rejection, cancer and opportunistic infections did not differ between the two groups. The incidence of post-transplant diabetes was higher (38% vs 15%) in patients with CMV disease, but this difference was not significant ($p = 0.4$).
Conclusions: An incidence of 13% of late-onset CMV disease was observed despite 3 months VGC prophylaxis. However, no indirect consequences were found. Moreover, therapy of CMV disease by oral VGC was effective and safe. Larger trials are needed to study whether late-onset CMV disease is associated with indirect consequences, as described with early-onset CMV.

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BKV Viral Load Monitoring and Leflunomide Treatment in Renal Transplant Recipients

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Background: BKV associated nephropathy is a major problem among renal transplant recipients as it leads to graft loss. Identification and monitoring of high risk patients is crucial for the induction of therapy and the survival of the graft.
Objectives: We examine the effectiveness of quantitative Real-Time PCR to identify patients at high risk of BKVN and monitor the efficacy of treatment, in order to avoid invasive methods.
Methods: From 7/2005 to 2/2008 231 paired samples (plasma and urine) were sent to our lab for BKV viral load measurement. The samples were drawn upon kidney dysfunction from 121 patients that underwent renal transplantation at the transplant unit of Laiko Hospital. On the basis of PCR positivity the patients were classified into 3 groups. Group 1 (n=89) tested negative both in plasma and urine. In Group 2 (n=22) BKV DNA was detected only in urine while Group 3 patients (n=10) had DNAemia and viruria and were treated with leflunomide along with reduction of immunosuppression.
Results: Group 1 and Group 2 patients never developed BKVN. Group 2 patients had a median viral load of 2.6×10^4 copies/mL, but had negative urine cytopathology or biopsy. Group 3 median viral load of DNAemia and viruria was respectively 3.9×10^4 copies/mL and 7.15×10^4 copies/mL. 80% of the patients had positive urine cytopathology and 100% had positive biopsy.
Upon treatment with leflunomide DNAemia resolved very quickly, while viruria showed clearance or progressive reduction in 80%. Two patients that showed multiple reactivations of the virus eventually resolved as well.
Conclusions: Viral load measurement in paired plasma and urine samples is a sensitive and specific non invasive method for the monitoring of BKV infection in RT recipients. Since the incidence of

BKVN is 8.3% the method is also cost-effective. Leflunomide treatment seems to be effective for the clearance of BKVN.

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Six Month Incidence of Bloodstream Infections in Intestinal Transplant Patients

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Background: Intestinal transplantation has emerged as a treatment option for patients with life-threatening intestinal failure. The most common complication and cause of death is infection.
Objective: To determine the 6 month post-operative incidence of bloodstream infections (BSI), and to characterize associated risk factors.
Material and Methods: We performed a retrospective chart review of all small bowel transplant recipients between 2003 -2007. The characteristics below were analyzed as potential risk factors for BSI: colon/liver inclusion, total bilirubin >5, surgical complications, & acute rejection. Most patients received immunosuppression with basiliximab, tacrolimus, sirolimus and a prednisone taper. 6 patients received thymoglobulin instead of basiliximab.
Results: Fifty-six patients received an intestinal transplant from November 2003 to July 2007. Twenty-three were adult (>18 years), and 33 pediatric. Nine adults and 25 children developed BSI (p=0.006). Twenty-two patients received an isolated intestinal transplant, 16 liver-intestine, 16 multivisceral, and 2 modified multivisceral. The patient characteristics are listed in table 1. Thirty-four of 56 patients (61%) had at least one episode of BSI. A total of 85 episodes of BSI were observed, with 65.9% of BSI due to Gram-positives, 34.1% Gram-negatives and 2.4% fungemia (table 2). The most common isolates were: VRE/non-VRE, *Enterobacter*, *Klebsiella* and coagulase negative *Staphylococci*. The mean time to first BSI was 26.4 days. Of 85 BSI episodes, 69 occurred in patients who received a liver. In these 32 patients, 23 had BSI compared to 11 of the 24 non-liver patients (p=0.048) (table 3). Of 27 patients with a total bilirubin >5mg/dL, 21 developed BSI compared to 9 of the 29 patients with a total bilirubin ≤5mg/dL (p=0.000). Severn of 11 colon inclusion patients developed BSI compared to 27/45 non-colon inclusion pts (p=ns). Of 21 patients with surgical complications, 12 developed BSI versus 21 of the 35 patients without complications (p=ns). Nineteen patients had acute rejection. Twelve of these patients had BSI compared to 23 of the 37 patients who did not reject (p=ns).

Table 1. Patient characteristics

Total number of patients	56
Adults / Pediatric	23 / 33
Males / Female	32 / 24
Average Age ± SD	18.4±19.8 yrs
Age range	6 months – 62 years
Colon inclusion	11 pts
Liver inclusion	32 pts
Surgical complications (perforation, leak, bleed, abscess)	21
Patients with acute rejection	19 pts

Table 3. Patient variables and incidence of BSI

Variable	Number of Pts	Number of Pts with BSI	p value
Age (Pediatric vs. Adult)	33 / 23	25/9	0.006
Colon (Inclusion vs. No Inclusion)	11 / 45	7/27	ns
Liver (Inclusion vs. No Inclusion)	32 / 24	23/11	0.048
Total bilirubin at Tx (>5 vs ≤5)	27 / 29	21/9	0.000
Surgical complications (Present vs. Absent)	21 / 35	12/21	ns
Acute rejection (Present vs. Absent)	19 / 37	12/23	ns

Conclusions: BSI are a common complication of intestinal transplant. The incidence appears to be higher in children. It appears that liver inclusion and preoperative bilirubin >5 are associated with a higher incidence of BSI. Acute rejection and colon inclusion do not appear to have an influence on BSI incidence.

31
The Utility of Surveillance Bronchoscopy for the Detection of Subclinical Infection after Lung Transplantation

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Background: Surveillance bronchoscopy is often performed after lung transplantation in an attempt to identify acute rejection or infection before signs of disease develop. This practice is not known to improve outcomes.
Objective: To evaluate the microbiologic yield of surveillance BAL in lung transplant recipients during the first year post-transplant.
Methods: Medical records for all adults who underwent lung transplantation at Duke University between 01 Jan 2005 and 01 Jan 2007 were reviewed. Surveillance bronchoscopies were performed 1, 3, 6 and 12 months after transplant. If acute rejection was detected, the procedure was repeated monthly until 2 sequential biopsies were negative. BAL specimens were classified according to whether the subject had symptoms (i.e. new or worsening dyspnea, cough, sputum production, fever, a decrease in lung function, or chest radiograph changes). The clinical relevance of microorganisms detected by culture, direct fluorescent antibody [DFA] or stain was determined and all therapeutic interventions recorded.
Results: During the study period 128 transplants (124 double-lung, 3 single-lung, and 1 heart-lung) were performed. The median (range) subject age was 55 (17-70) years. The most common conditions necessitating transplant were idiopathic pulmonary hypertension (n=42), COPD (n=36), and cystic fibrosis (n=18). A total of 630 surveillance BALs were submitted for microbiologic analysis; 28.7% (181/630) were from subjects with documented symptoms. Most (67.5% [425/630]) surveillance samples grew only oropharyngeal flora and 4.9% (31/630) were completely negative. Overall, 27.9% (176/630) of specimens had a potential pathogen detected. Of the potentially significant organisms identified, bacteria accounted for 41.4% (72/174), fungi 21.8% (38/174), viruses 21.2% (37/174), mycobacteria 7.5% (13/174), and PCP 1.1% (2/174). Multiple pathogens were found in 14 samples. BAL fluid from symptomatic subjects yielded a potential pathogen more often than

Abstract 30 – Table 2. Microbiology of BSI episodes

Organism	Overall (n = 85 episodes)	Colon +/– liver (n = 17 episodes)	Non-colon +/– liver (n = 68 episodes)	Liver (n = 69 episodes)
Gram-positive cocci (*VRE, CNS, MRSA, MSSA, Strep viridans)*	56/85 (65.9%)	12/17 (70.6%)	44/68 (64.7%)	49/69 (71.0%)
Gram-neg rods (*Enterobacter, Klebsiella, Pseudomonas, E .coli, Citrobacter*, others**)	29/85 (34.1%)	5/17 (29.4%)	24/68 (35.3%)	20/69 (29.0%)
Candida species (*C. albicans, C. parapsilosis*)	2/85 (2.4%)	1/17 (5.9%)	1/68 (1.5%)	2/69 (2.9%)

***Burkholderia, Stenotrophomonas, Serratia, Capnocytophaga.*