American Society of Nephrology – Renal Week 2010
Nephrology Quiz and Questionnaire: Transplantation

Donald E. Hricik, MD, University Hospitals Case Medical Center

Case 1

A 63-year old woman with end-stage renal disease secondary to type 2 diabetes mellitus received a kidney transplant from a deceased donor six months ago. The donor was serologically positive for Epstein Barr virus (EBV) and for cytomegalovirus (CMV) based on IgG titers, while the recipient was serologically negative for both EBV and CMV. The patient received induction antibody therapy with rabbit anti-thymocyte globulin (total dose ~ 6 mg/kg) and maintenance therapy with tacrolimus, enteric-coated mycophenolate sodium, and steroids that were withdrawn per protocol after seven days. At the time of transplantation, the following prophylactic anti-infectives were prescribed: trimethoprim-sulfamethoxazole (one single strength daily for life), clotrimazole troches (10 mg TID for 3 months), and valganciclovir (450 mg daily for 3 months). Because of a "donut hole" in her Medicare Part D drug coverage, her monthly co-pay for valgancilcovir was ~ $1200/month. Her allograft functioned immediately, and her nadir serum creatinine concentration was 1.4 mg/dl 3 weeks post-transplant, with subsequent values ranging between 1.5 and 1.8 mg/dl. She is now admitted to the hospital for evaluation of a two-week history of bloody diarrhea, fever, and chills. On physical examination, the patient has mild postural hypotension. Temperature is 38.3 C. Laboratory studies reveal a serum creatinine concentration of 1.9 mg/dl, BUN 59 mg/dl, hemoglobin 8.9 gm/dl (baseline 10.5 gm/dl), WBC 4,500 (baseline ~ 6,000). Blood PCR for CMV is negative. EBV titers are pending. The patient's postural hypotension resolves with IV saline and transfusion of PRBCs. Arrangements have been made for a colonoscopy.

Question 1a: Which ONE of the following statements regarding the differential diagnosis is correct?

A. The negative PCR for CMV rules out CMV enteritis.
B. CMV is unlikely because it rarely occurs more than five months after transplantation.
C. CMV disease would have been less likely if prophylaxis with valganciclovir had been extended for 6 months.
D. EBV related lymphoma of the gastrointestinal tract is unlikely this early after transplantation.
E. Her illness is most likely due to treatment with enteric coated mycophenolate sodium.

Question 1b: Presuming that the colonoscopy reveals CMV colitis, which ONE of the following statements regarding treatment is correct?

A. Because resistance to ganciclovir is likely, initial treatment should consist of foscarnet and CMV immunoglobulin, pending the results of cultures.
B. Treatment should consist of 4-6 weeks of IV ganciclovir, the exact duration depending on resolution of symptoms.
C. Treatment should consist of IV ganciclovir until serologic evidence for CMV has subsided.
D. Treatment should consist of IV ganciclovir followed by oral valganciclovir once the patient's fever and bloody diarrhea have resolved.

Case 2

A 59-year old man with end-stage renal disease from adult polycystic disease had a living donor kidney transplant from his haplo-identical brother 13 years ago. His current immunosuppression consists cyclosporine (Neoral®), generic mycophenolate mofetil (MMF), and prednisone. His transplant allowed him to return to a successful landscaping business. During the past three years, serum creatinine concentration gradually rose from 0.9 mg/dl to 1.5 mg/dl, prompting a biopsy three months ago, revealing interstitial fibrosis and tubular atrophy. Cyclosporine dose was reduced by 50 percent, but the serum creatinine has not changed. Recent laboratory studies have included a spot urine protein/creatinine ratio of 350. Estimated GFR is 42 ml/min. For the past six years, he has noted innumerable warts on his hands, arms, and face. During the same time period, his dermatologist has resected three basal cell carcinomas. He has required surgery for six squamous carcinomas involving his scalp, nose, left ear, and right hand – each resulting in significant disfigurement. Physical examination reveals multiple keratoses on the scalp, face, upper trunk, arms, and feet.

Question 2a: Which ONE of the following changes in the patient's immunosuppressive regimen would be MOST helpful in dealing with the patient's clinical presentation?

A. Convert MMF to azathioprine
B. Convert MMF to enteric coated mycophenolate sodium
C. Convert prednisone to everolimus
D. Convert cyclosporine to sirolimus
E. Convert MMF to sirolimus

Question 2b: If the patient is converted to a TOR inhibitor, which ONE of the following is the MOST likely consequence?

A. Decrease in LDL cholesterol
B. Decrease in urine protein excretion
C. Increase in fasting blood sugars
D. Increase in the size of the cysts in his native kidneys
E. Increase in hemoglogin concentration