Acute Respiratory and Circulatory Failure in a Renal Transplant Patient (Another case when vancomycin & meropenem will fail)

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CASE PRESENTATION

42-year-old man s/p renal transplant 3 yrs ago was transferred from an outside hospital for possible acute respiratory and circulatory failure. He reported having a new sexual partner three weeks prior but with negative testing for HIV, gonorrhea, Chlamydia, and trichomoniasis. He had worsening renal allograft dysfunction with Cr 3.5 from baseline 1.5, treated with prednisone 1mg/kg after eosinophilic interstitial nephritis seen on biopsy. He denied change in diet, travel, or sick contacts. He reported having a new sexual partner three weeks prior but with negative testing for HIV, gonorrhea, Chlamydia, and trichomoniasis.

Physical Examination

T: 37.3°C, BP: 108/69, HR: 107, RR: 18, O2 saturation: 97% on 2L. Physical examination was significant for cough, left supraventricular tenderness, and bilateral pulmonary opacities on portable AP chest radiograph. He complained of 3 weeks of diarrhea and abdominal pain. He was recently found to have worsening renal allograft dysfunction with Cr 3.5 from baseline 1.5, treated with prednisone 1mg/kg after eosinophilic interstitial nephritis seen on biopsy. He denied change in diet, travel, or sick contacts. He reported having a new sexual partner three weeks prior but with negative testing for HIV, gonorrhea, Chlamydia, and trichomoniasis.

Past Medical History

• Hypertension
• Status post DODR 3 yrs prior (18 injection 2 yrs ago treated with thymoglobulin, complicated by CMV viremia)

Epidemiological History

Occasional EIOH use, non-smoker, has 4 children, not married, prior incarceration >5 years ago.

Physical Examination


Surgical History


Diagnosis/Diagnoses

Upper/lower endoscopy to evaluate for CMV colitis given diarrhea, detectable CMV showed nodular colonic mucosa and multiple ischemic-appearance areas, biopsied. Overnight after endoscopy, became non-responsive, acutely hypotensive with BP 75/52mmHg, with rapidly worsening hypoxic respiratory failure. Treated with vancomycin, meropenem, epinephrine, norepinephrine, vasopressin. ECMO considered. Goals of care discussed, transitioned to DNR, patient died 24 hours after endoscopy.

Postmortem pathologic review of his colon and gastric endoscopic biopsies confirmed acute and extensive disseminated infection with Toxoplasma gondii. His prior T. gondii serostatus was unknown. Unfortunately, his clinical deterioration was too rapid to allow targeted treatment for T. gondii. His clinical trajectory underscores the importance of considering toxoplasmosis in the differential of solid organ transplant recipients with acute respiratory failure and septic shock.

MAJOR TEACHING POINTS

Toxoplasmosis epidemiology

• Central and Southern Europe, Latin America, and Southern Africa have moderate seroprevalence (30-50%)
• Southeast Asia shows the highest seroprevalence, while Northern Europe, and Sahelian Africa have reported lower seroprevalence (10-30%).
• Declining seroprevalence in US women may mean increasing risk of congenital toxoplasmosis because this usually occurs with maternal primary infection.

Toxoplasmosis in transplant recipients

• Rare in era of universal prophylaxis with TMP-SMX but multiple infections have been recently reported in solid organ and hematopoietic cell transplant recipients in setting of prophylaxis with atovaquone (less effective) and inhaled pentamidine (ineffective).

• A French multi-center study of ICU patients with disseminated toxoplasmosis (22/38, 58% with HCT, 43%, 10% SOT), 89% had respiratory failure, 53% had shock, 42% had septic shock.

• In contrast, the French series showed HCT patients are much more likely (22/22, 100%) to have positive pre-transplant Toxoplasma IgG and near-term infection after transplant (suggesting reactivation is the most important process of infection).

• In a multi-center study of toxoplasmosis in SOT recipients in Spain, only significant risk factor for toxoplasmosis post transplant was negative pre-transplant Toxoplasma IgG (suggesting that new infection may be a more important determinant of disease in this group).

REFERENCES

4. Schmitz P, Herold BC, Schendel P. Risk factors and outcome of toxoplasmosis in transplant recipients in Spain, only significant risk factor for toxoplasmosis post transplant was negative pre-transplant Toxoplasma IgG (suggesting that new infection may be a more important determinant of disease in this group).