Case of Pneumocystis Pneumonia 6 Years Post-Renal Transplant while on Everolimus

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Case Description

- Patient’s current **immunosuppression regimen**: tacrolimus 1 mg q12, prednisone 5mg qDay, and newly substituted everolimus 0.75 mg q12 for mycophenolate mofetil. Change occurred due to recent skin cancer diagnosis.

- Concern for everolimus drug-induced pneumonitis versus infectious process led to holding everolimus and starting infectious work up

- Viral respiratory panel from nasal swab came back negative, sputum sample for *Pneumocystis jirovecii* negative, CMV DNA not detected. Proceeded with Bronchoalveolar Lavage a week later as patient continued to experience hypoxia requiring oxygen.

- Repeat CT showed ground-glass opacities with some nodularity.

- **Prior to discharge**: continued hypoxia requiring 4L NC. Left on prednisone taper and off of everolimus with follow up scheduled at Infectious Disease (ID) Clinic and Transplant Clinic.

- At **ID clinic**, Ms. P’s lab results were all in and led to the final diagnosis of *Pneumocystis jirovecii*. She was started on TMP/SMX q8 PO for 3 weeks

- At **3 week follow up** appointment to ID clinic, patient reported significant improvement with normal oxygen saturations on room air. She was instructed to continue TMP/SMX three times per week for 3 months as prophylaxis against PCP.

- **Immunosuppression regimen set by Transplant**: to tacrolimus 0.5 mg qDay and prednisone 5 mg qDay.

Images

![Figure 1. Ms. P’s CXR in ED which showed no consolidation, pleural effusion, or vascular congestion](image1)

![Figure 2. Ms. P’s CT prior to discharge which shows a node in right upper lobe as well as scattered ground glass and nodular opacities](image2)

Introduction

- **Pneumocystis jirovecii** pneumonia (PCP) is a rare cause of pulmonary infection that primarily affects the immunosuppressed (1).

- Populations at risk include: HIV patients with low CD4 counts, hematopoietic stem cell and solid organ transplant patients, cancer patients, and patients with long-term glucocorticoid or immunomodulator use

- Continued debate on best duration for prophylactic therapy. Currently recommended: 12 months (2).

- Prophylactic regimen: First line is trimethoprim/sulfamethoxazole (TMP/SMX), for those with sulfa allergy use atovaquone

Case of Pneumocystis Pneumonia 6 years post-transplantal transplant while on Everolimus

Nikita Desai and Ayooluwa Ayoola, (Wayne State University School of Medicine)

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**Conclusion**

- **Typical radiographic findings for PCP are diffuse bilateral, interstitial infiltrates**. When x-ray plain film shows no abnormalities, CT may show ground glass opacities or cystic lesions. Findings for everolimus pneumonitis are similar with ground glass opacities, focal consolidations, nodular opacities, reticulonodulosis (1).

- Both PCP and everolimus drug-induced pneumonitis tend to present with nonspecific symptoms: dyspnea, dry cough, fever, fatigue, hypoxia, and hemoptysis (3)

- Patients not treated with prophylaxis are **most vulnerable during the first 6 months after transplant** (4). With the incorporation of PCP prophylaxis, incidence of PCP within the first year is quite rare. Greater immunosuppression increases risk of infection.

- **Clinical suspicion of PCP** is based on symptoms and radiographic changes. It is then confirmed with a positive PCP PCR assay. Of note, co-infection with CMV may increase risk of PCP infection (2).

- **Although rare, this case demonstrates PCP can occur >1 year post-transplant**.

**References**


