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DISSEMINATED CRYPTOCOCCAL INFECTION AFTER INITIATION OF BENRALIZUMAB IN A PATIENT WITH ASYMPTOMATIC PULMONARY CRYPTOCOCCUS

ALICE SHEN PRAVEEN AKUTHOTA AND JEFFREY BARRY

INTRODUCTION: Most cases of severe asthma are associated with Th2-driven inflammation with phenotypic subclassifications such as eosinophilic asthma, allergic bronchopulmonary mycosis, and eosinophilic granulomatosis with polyangiitis (1). In such cases, inhaled therapies alone are often ineffective, and patients are reliant on corticosteroids. Anti-IL-5 therapies have shown promise in treating these patients, with few adverse events reported in clinical trials (2). Nevertheless, isolated cases of disseminated fungal infections have been reported after initiating these biologics (3).

CASE PRESENTATION: A 67-year-old man with eosinophilic asthma and NASH cirrhosis experienced monthly asthma exacerbations requiring frequent hospitalization and corticosteroids. He had consistently high eosinophilia with a maximum eosinophil count of 4900/μL. He was started on benralizumab with improvement in asthma symptoms, and oral steroids were discontinued without exacerbation. He was also found to have incidental pulmonary nodules prior to benralizumab initiation but was not diagnosed with asymptomatic pulmonary cryptococcus until after his second dose due to barriers in accessing care. Antifungals were not initiated due to his decompensated cirrhosis and pulmonary improvement. On follow-up CT 2 months after initiation of benralizumab, the pulmonary nodules were noted to have improved.6 weeks after receiving his second dose, he presented with fever, back pain, and lower extremity weakness. He was admitted and had a seizure on hospital day 3. Head CT and MRI brain showed enhancements with leptomeningeal involvement and his CSF was positive for cryptococcal antigen, confirmed by culture. After 27 days of treatment with amphotericin and flucytosine, he was clinically improved with normalizing CSF labs. He was discharged with flucytosine with scheduled follow-ups but unfortunately was lost to follow-up.

DISCUSSION: IL-5 promotes eosinophil hematopoiesis and inflammation in the airways, making it a target of biologic therapy for eosinophilic asthma (2). Anti-IL-5 antibodies, such as mepolizumab and reslizumab, and the anti-IL-5 receptor alpha antibody benralizumab, have been shown to reduce eosinophilia. Benralizumab has been found to be particularly effective due to its role in depleting both eosinophils and basophils, cells bearing the IL-5 receptor, through antibody-dependent cytolysis. Clinical trials have shown these therapies to have a good safety profile with no excess serious adverse events (2). However, this case highlights the risk of fungal dissemination in patients with existing fungal infections who receive anti-IL-5 biologics.

CONCLUSIONS: While anti-IL-5 biologics hold promise in reducing inflammation and corticosteroid dependence in patients with eosinophilic asthma, given the role of eosinophils in cytotoxic anti-fungal immunity, caution should be exercised when considering their use in patients with known fungal infections.

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DISCLOSURES:

CME speaker relationship with AKH, Inc Please note: 2019-present by Praveen Akuthota, value=Honoraria

Scientific Medical Advisor relationship with GlaxoSmithKline Please note: 2020-present by Praveen Akuthota, value=Consulting fee

Site PI; Scientific Advisor relationship with AstraZeneca Please note: 2018-present by Praveen Akuthota, value=Grant/Research Support

Site PI relationship with Regeneron Please note: 2021-present by Praveen Akuthota, value=Grant/Research Support

Scientific Medical Advisor relationship with Sanofi Please note: 1/1/2022-present by Praveen Akuthota, value=funds to university

Consultant relationship with Sanofi Please note: 2021-present by Praveen Akuthota, value=consulting fee to university

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