

Researchers find chronic rhinitis influences hospital readmissions for asthma and COPD patients

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Umesh Singh, M.D., Ph.D., and Jonathan Bernstein, M.D., shown in a laboratory at the University of Cincinnati College of Medicine. Credit: UC College of Medicine

Patients hospitalized for either asthma or chronic obstructive pulmonary disease (COPD) have a higher risk of being readmitted for a hospital stay within 30 days of release if they also suffer from chronic rhinitis, according to a trio of researchers at the University of Cincinnati (UC).

The study is available online in the *Journal of Allergy and Clinical Immunology: In Practice*, and is co-authored by Umesh Singh, MD, Ph.D., research scientist, and Jonathan Bernstein, MD, professor, in the UC College of Medicine's Division of Immunology, Allergy and Rheumatology, and Victoria Wangia-Anderson, Ph.D., associate professor in the UC College of Allied Health Sciences.

The medical outcomes for 4,754 [asthma patients](#) and 2,176 COPD [patients](#), all from UC Health, were studied for a five-year period, between July 15, 2012 and July 19, 2017, explains Singh, the paper's first author. Relevant comorbidities including allergic rhinitis and non-allergic rhinitis, both are forms of chronic rhinitis, were identified. The association between 30-day asthma or COPD-related [hospital](#) admissions (1,670 such encounters for asthma and 736 for COPD) and comorbid chronic rhinitis in affected patients were determined using Cox proportional hazard models, he says.

UC Health is the Tristate healthcare system that is a teaching affiliate of the UC College of Medicine.

Chronic rhinitis means persistent inflammation of the nose, while allergic rhinitis is due to the genetic predisposition to produce IgE or immunoglobulin E—antibodies that are specifically made in response to environmental factors such as dust mite, animals or tree, grass and ragweed pollens, says Bernstein, the paper's corresponding author.

In the study, multivariate hazard models adjusted for relevant patient comorbidities, compared 30-day asthma- and COPD-related

readmissions of patients with allergic and non-allergic rhinitis with those patients without that diagnosis, says Singh. The analysis found that asthmatics with allergic rhinitis were 4.4 times more likely to face hospital readmission within 30 days of discharge compared to asthmatics without allergic rhinitis. Asthmatics with non-allergic rhinitis were 3.7 times more likely to face hospital readmission within 30 days of discharge compared to asthmatics without non-allergic rhinitis, Singh says.

COPD patients with allergic rhinitis may be readmitted 2.4 times the rate within 30 days of discharges compared to COPD patients without allergic rhinitis, says Singh. Meanwhile, COPD patients with non-allergic rhinitis may be readmitted at 2.6 times the rate within 30 days of discharge as compared to COPD patients without non-allergic rhinitis, he says.

Bernstein says the findings could be helpful for physicians treating asthma and COPD patients.

"When patients have asthma or COPD we tend to focus on treating the lower respiratory, but we also need to focus on comorbidities to help improve management of their illness," says Bernstein, an expert in allergies and also a UC Health physician. "One of the comorbidities for us to consider is upper respiratory disease such as chronic rhinitis which is often ignored or under treated."

The lower respiratory tract generally refers to the windpipe and within the lungs, the bronchi, bronchioles and alveoli. The [upper respiratory tract](#) includes the nose, nasal cavity, mouth, throat and larynx.

"I think if you ask residents or doctors if they take a history about rhinitis, whether it is allergic or non-allergic rhinitis and if they pay attention to medications used to treat these conditions especially when

patients are in the hospital or even as outpatients, often times you hear they do not," says Bernstein. "We need to recognize the importance of taking a thorough history regarding upper as well as lower respiratory symptoms when seeing these patients in our clinics or in the hospital and initiate treatment if appropriate.

"This study further emphasizes the subcellular interaction between the upper and lower respiratory tract that are well known," says Bernstein. "One can't just focus on the [lower respiratory tract](#) and ignore the neck and above. It's a whole system and the results of this study indicates that clinicians need to better recognize and start managing this problem more effectively.

Bernstein says there are definite nuances in the management of allergic versus non-allergic rhinitis which requires some expertise. It's not one size fits all. They are caused by different mechanisms of action, are treated differently and respond to different medications."

"This study may garner some attention because of its focus on 30-day hospital readmission rates which is one of the biggest economic markers of success for hospital systems," says Bernstein. "A prospective study that examines 30-day hospital readmission rates after physicians have treated allergic and/or non-[allergic rhinitis](#) as comorbidities for asthma and COPD patients is needed to validate these findings."

Provided by University of Cincinnati Academic Health Center

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