

AERD Center

at Brigham and Women's Hospital

Information for patients with aspirin-exacerbated respiratory disease (AERD) / Samter's Triad

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MESSAGE FROM OUR DIRECTORS

This past year has been one of growth and fast-paced AERD-related research, and our team at the Brigham and Women's Hospital AERD Center has expanded. We have continued to make new discoveries in AERD, in terms of both clinical care and treatment options, and increasing our understanding of the actual causes and mechanisms of the disease.

AERD Awareness Day
September 26th, 2024

Show your support by spreading awareness and learning more at www.samterssociety.org!

Dr. Tanya Laidlaw,
Dr. Kathleen Buchheit
& Jillian Bensko, PA-C

Note: We have expanded our AERD Center clinic locations so that Jillian Bensko, PA-C now also sees AERD patients on Tuesdays at the MGB Health Care Center in Foxboro – make an appointment with her there if it is more convenient for you!

BY THE NUMBERS

We now have over 2,600 patients enrolled in our AERD Registry! Having sent out several surveys to participants at the end of 2023, we received a lot of new information that we were able to analyze and develop into 3 entirely new studies that were published earlier this year.

First is our study showing that patients with AERD have difficulty with finding the best and safest pain medications that are alternatives to classic NSAIDs (Page 2, Publication #2). Second is our study where we found that more than 1/2 of our AERD patients on the biologic medication dupilumab (anti-IL-4 α) are able to space out their use of it to less often than every 2 weeks, while maintaining benefit (Page 2, Publication #3). Lastly, we published the "aspirin-lowering protocol" that we recommend for our patients on daily aspirin who need to decrease it before a surgery or procedure – this way, other AERD patients who aren't able to be seen at our center can still have access to these recommendations (Page 2, Publication #4).



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PUBLICATION #1

IL-4Rα signaling promotes barrier-altering oncostatin M and IL-6 production in AERD.

This study showed for the first time that nasal fluid levels of oncostatin M (OSM) and IL-6 are higher in AERD patients compared to healthy controls and are reduced by dupilumab (anti-IL-4Rα) treatment. We suspect that one of the reasons that dupilumab works so well as a treatment for AERD nasal polyps might be because it reduces those levels of OSM and IL-6 (in addition to its ability to reduce other "Type 2" inflammation). PMID: 38704098

PUBLICATION #2:

Consequences of NSAID allergy on pain control options for patients with AERD.

This study found that the COX-2 inhibitor celecoxib offers effective pain management for most patients with AERD, and that non-selective NSAIDs (like ibuprofen and naproxen) can also be effective and safe for most AERD patients to take if they've gone through an aspirin desensitization and are on daily aspirin. Unfortunately, we also found that there is a high rate of narcotic overprescribing for patients with AERD, suggesting that reported NSAID allergies predispose our patients to the prescription of potentially less safe pain medications. Interestingly, despite multiple studies pointing to celecoxib as an appropriate option for many patients with AERD, narcotics were more often prescribed for pain in place of a non-selective NSAID than was celecoxib. Additional education of providers regarding pain management options may help avoid unnecessary opioid overprescribing. PMID: 38423289

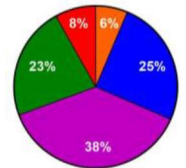
PUBLICATION #3:

Efficacy of various dosing frequencies of dupilumab in patients with AERD.

This study found that 32% of AERD patients on dupilumab (anti-IL-4Rα) for asthma or nasal polyposis had attempted a dosing interval other than every 2 weeks. Of those, 68% chose to continue with less frequent injections, most commonly every 3 weeks, without reduction in their perceived clinical benefit. Our data

highlight the potential for patients with AERD to reduce their dupilumab dosing frequency in the future and the need for provider education about this option.

Pie chart showing frequency of dupilumab administration. PMID: 38484871



- More often than every 2 weeks
- Every 2 weeks
- Every 3 weeks
- Every 4 weeks
- Between every 4-8 weeks

PUBLICATION #4:

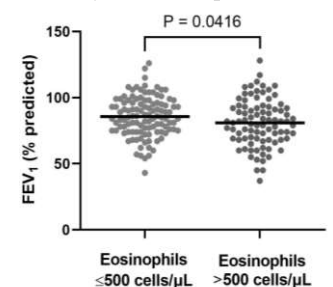
Utilization of protocols to lower daily aspirin dose prior to surgical procedures for patients with AERD.

Aspirin-lowering and ibuprofen-bridging protocols are safe and effective for patients with AERD to decrease aspirin dose prior to elective surgical procedures, but were only utilized in half of surveyed participants, suggesting need for increased awareness. Please make sure you reach out to us prior to any upcoming procedures so that we can provide you with options/recommendations for how to reduce your dose of aspirin (if possible), so that you don't need to stop aspirin completely and then repeat the aspirin desensitization after the procedure. PMID: 38508337

PUBLICATION #5:

Absolute eosinophil counts in AERD are elevated and correlate inversely with lung function.

This study describes the number of eosinophil cells in the blood of patients with AERD, which has been long known to often be elevated. While the "normal" eosinophil count is usually <150 cells/μL, in 225 patients with AERD, the absolute eosinophil count ranged from 10-4400 cells/μL, with 78% of patients having an eosinophil count >250 cells/μL, and 46% having an eosinophil count of >500 cells/μL. AERD patients with an eosinophil count >500 cells/μL had significantly lower FEV1 (lung function) readings than those with eosinophil counts ≤500 cells/μL. See Figure for the differences. PMID: 3828158



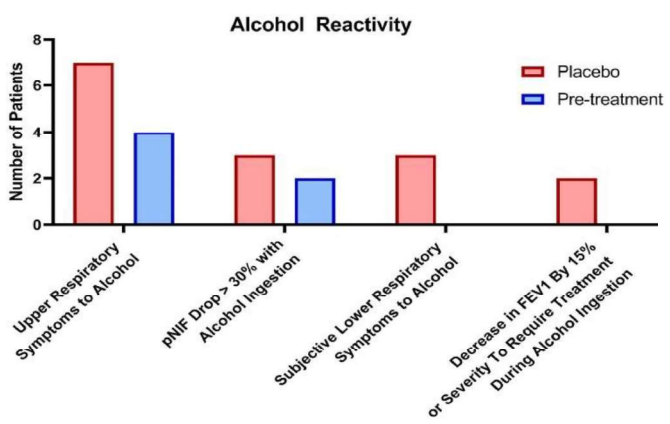
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PUBLICATION FROM SCRIPPS CLINIC:

Alcohol-induced reactions in AERD (the "Happy Hour" study). PMID: 37302527

In this study, 8 patients with AERD who had reported respiratory reactions after drinking alcohol came in for 2 alcohol challenges – prior to one, they were pretreated with placebo (no active drug) and prior to the other, they were pretreated with montelukast and cetirizine. Shown in the figure below, these pretreatment medications decreased the severity of their alcohol-induced reactions.

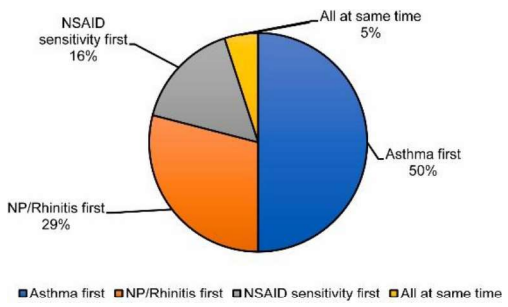


PUBLICATION FROM MAYO CLINIC:

AERD symptom development and environmental exposures study. PMID: 37541619

The aim of this study was to characterize the development of the symptoms of the classic 'triad' (asthma, nasal polyps, reactions to NSAIDs) in AERD, and look for possible environmental exposures that may be associated with AERD. They included 240 patients and found that ~50% (119) reported the onset of asthma as the first AERD symptom they developed, whereas 29% (70) reported nasal polyps as the first AERD symptom they noticed, and 16% (39) reported NSAID sensitivity as the first symptom.

Interestingly, the "NSAID sensitivity first" group was associated with male sex and with pollution exposure.



CURRENT AND ONGOING RESEARCH STUDIES

ONGOING STUDY 1: Mechanisms of benefit of IL-4Rα inhibition in AERD ("MARINER" study)

The aim of this study is to determine how the biologic medication dupilumab (anti-IL-4α) decreases nasal polyps and improves sense of smell in patients with nasal polyps or AERD. We will follow ~30 adults with nasal polyps who start dupilumab. Clinical data and samples from nasal fluid, nasal polyp biopsy, blood, and urine will be collected at baseline, and after 2 weeks and 8 weeks of treatment with dupilumab and will be analyzed to learn which changes correlate with clinical benefit. We have enrolled 14 patients so far, and are continuing enrollment this year.

ONGOING STUDY 2: Assessing Long-Term Outcomes of Dupixent Treatment in Patients With Nasal Polyposis (AROMA)

AROMA is an observational study investigating the long-term effectiveness and safety of dupilumab (Dupixent®) in adults with chronic rhinosinusitis with nasal polyps (CRSwNP). Participants complete a series of questionnaires and diary entries to assess symptoms, how the symptoms change over time, and about overall satisfaction with treatment. Enrollment for AROMA has completed; we are now following the participants for a total of up to 3 years.

ONGOING STUDY 3: Predicting nasal polyp re-growth rates

We are working to identify biomarkers associated with nasal polyp recurrence after endoscopic sinus surgery in AERD. Nasal polyps can rapidly recur after sinus surgery in some patients with AERD, even if they are on high-dose daily aspirin therapy. Using nasal polyp tissue and nasal mucus samples from patients who underwent sinus surgery, we will measure levels of certain proteins, lipids/fats, and cells in these samples to identify factors that predict nasal polyp recurrence. We hope to shed light on the causes of severe nasal polyposis and AERD and to identify novel therapeutic targets for this disease.

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ONGOING STUDY 4: Nasal fluid proteomics for Asthma Endotyping (NASCENT)

Asthma is a disease with several different types, but the current approach to endotyping relies on a limited set of blood biomarkers: serum IgE and blood eosinophils. These markers miss many types of asthma and don't help us figure out which treatment might be best for each patient. In this study we plan to establish that nasal fluid is a better biofluid to identify and monitor asthma endotypes, compared to blood. We will be comparing levels of certain proteins in the blood vs the nasal fluid of patients with asthma.

NEW STAFF/MEMBERS

Mabel Zawicki, BA - Mabel graduated from Wellesley College in May 2024, where she majored in Classical Civilization. She now works as the laboratory's technician and is planning to pursue an MD/PhD. In her free time, she enjoys playing in orchestras with friends and reading.



Alisa Pham, BS, MPH - Alisa graduated from Boston University in January 2023, where she majored in Health Science and Public Health with a concentration in Health Communication and Promotion. She now works as a clinical research coordinator in the Laidlaw Lab and is planning to advance her career in research in the future. In her free time, she enjoys exploring new places to eat and walking/running with her friends.



Jamie Rosado-Alicia, MD

Dr. Rosado-Alicia is an Allergy/Immunology fellow at Brigham and Women's Hospital, working in the Laidlaw Lab on the NASCENT study researching asthma biomarkers from nasal fluid. He completed his medical degree at in Puerto Rico at the San Juan Bautista School of Medicine in 2020, and then completed a Pediatric residency and Chief resident year at Saint Luke Medical Center.



Tiffany Dharia, MD

Dr. Tiffany Dharia is an Allergy/Immunology fellow in Allergy/Immunology at Brigham and Women's Hospital, working with Dr. Buchheit to investigate the causes underlying the rapid regrowth of nasal polyps in AERD. She graduated from Sidney Kimmel Medical College at Thomas Jefferson University, completed her residency in Internal Medicine at the University of Pennsylvania, and worked in the Medicine Department at Massachusetts General Hospital prior to joining Allergy at the Brigham.



WHERE ARE THEY NOW?

After a wonderful two years, Laura Cho is currently a medical student at the West Virginia University School of Medicine and after one year with us, Alyson Brown is a medical student at Cleveland Clinic School of Medicine.

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