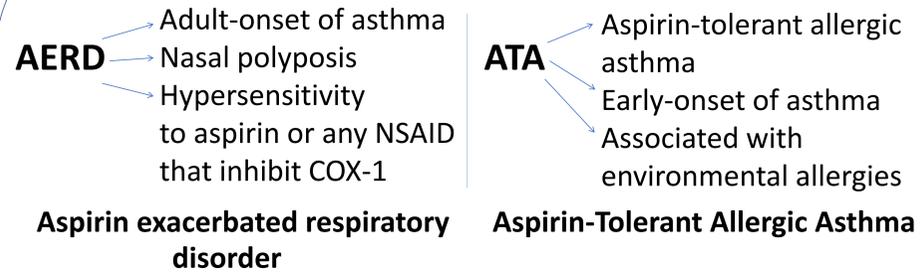


(#663) Lung Function Change In Aspirin Exacerbated Respiratory Disease (AERD) and In Aspirin-Tolerant Asthma (ATA) Patients

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Introduction



- Among all the patients diagnosed with asthma, approximately 7% are found to have AERD ⁽¹⁾
- Approximately, 15% of severe asthma patients, 9% of the patients with chronic rhinosinusitis and 10% of those with nasal polyps, are diagnosed with AERD⁽¹⁾
- Aspirin desensitization followed by a daily maintenance therapy after endoscopic sinus surgeries has been found to be effective in many patients with AERD ^(2,3,4)

Forced expiratory volume in 1 second (FEV1)

FEV1 is used as an objective evaluation of lung function in asthma patients.

Study Objective

- To compare the lung function at baseline (defined as the time of initial available FEV1 values) in AERD and ATA patients receiving standard of care treatments for asthma in the same clinical setting
- To perform a long-term comparison of lung function change in the AERD and ATA patients

Study Design and Methods

- This is a retrospective study. Fifty eligible patients, 24 AERD and 26 ATA patients were identified, and their electronic medical records were reviewed
- The information of patient’s demographics, baseline and recent FEV1 values, and change overtime in AERD and ATA patients during standard asthma management was recorded

Inclusion Criteria

- Age > 18 and < 85 years
- Any gender
- Patients with physician-diagnosed AERD and allergic asthma
- At least 1 year of records available in the EPIC system and at least 2 office visits at which FEV1 was measured and recorded in Epic
- Records within the last ten years were considered

Results

	AERD patients (N=24)	ATA patients (N=26)	p-value
Sex N(%): Female	19 (79)	23 (88)	p=0.4
Race: Black N(%)	11 (46)	7 (27)	p<0.01
White	4 (17)	2 (8)	
Latino	3 (12)	13 (50)	
Other	6 (25)		
Asthma duration	14 years (IQR 7- 29)	32 years (IQR 26-45)	p<0.01
Time followed	46 months (IQR 18-52)	42 months (IQR 29-62)	p=0.4
Baseline FEV1	89% (IQR 66-99)	59% (IQR 53-80)	p=<0.01
FEV1 at the end of of the follow-up time	82% (IQR 68-97)	69% (IQR 61-85)	p=0.06
FEV1 change	Decreased by -5% (IQR -8 to 8)	Increased by 6% (IQR 0-16)	p<0.05
Rate of FEV1 decrease per month of follow-up in clinic.	By -0.08% predicted (IQR -0.2 to 0.36)	By 0.1% predicted (IQR 0.1 to 0.44)	p=0.09

Table : Patient Characteristics

Summary

- The baseline FEV1 for AERD patients was higher than the ATA patients
- FEV1 at the end of the follow-up time was not significantly different overtime, between the two groups
- There was a significant difference in FEV1 change overtime: FEV1 decreased in AERD and increased in ATA
- There was no significant difference in the monthly rate of FEV1 decrease between the two groups

Discussion

- In ATA patients the lung function increased. However, at baseline lung function of ATA patients was significantly lower, than in AERD patients. It is possible that such difference could be attributed to the longer duration of the disease.
- We observed a faster decrease in lung function in AERD patients during the time of observation in our clinic for almost 4 years, while. It is not clear why FEV1 significantly decreased in AERD overtime while it increased in ATA. An explanation could be a more aggressive asthma course in AERD patients due to the presence of nasal polyps. It is also possible that compliance with medical regimen could be less stringent in AERD patients compared to ATA.
- We also observed a much higher prevalence of AERD in the Black or African-American population compared to the other AERD patients who visited the clinic, suggesting different prevalence of AERD in different ethnical or racial groups. However, this observation needs to be confirmed in a larger study

References

1. Rajan JP, et al. Prevalence of aspirin-exacerbated respiratory disease among asthmatic patients: A meta analysis of the literature. The Journal of allergy and clinical immunology. 2015;135(3):676-81.
2. Laidlaw TM. Pathogenesis of NSAID-induced reactions in aspirin-exacerbated respiratory disease. World journal of otorhinolaryngology - head and neck surgery. 2018;4(3):162-8.
3. Walters KM et al. Long-term Clinical Outcomes of Aspirin Desensitization With Continuous Daily Aspirin Therapy in Aspirin-exacerbated Respiratory Disease. Am J Rhinol Allergy. 2018;32(4):280-6.
4. Jerschow E. et al. Sinus Surgery Is Associated with a Decrease in Aspirin-Induced Reaction Severity in Patients with Aspirin Exacerbated Respiratory Disease. The journal of allergy and clinical immunology In practice. 2019;7(5):1580-8.