

Background

- Aspirin Exacerbated Respiratory Disease (AERD) is a chronic inflammatory condition characterized by the triad of eosinophilic asthma, chronic rhinosinusitis with nasal polyposis, and a non-IgE mediated hypersensitivity to non-steroidal anti-inflammatory drugs.
- The gold-standard treatment of AERD consists of complete functional endoscopic sinus surgery (FESS) followed by aspirin desensitization.
- In this study, we seek to **compare the long-term outcomes of aspirin desensitization between males and females with AERD.**

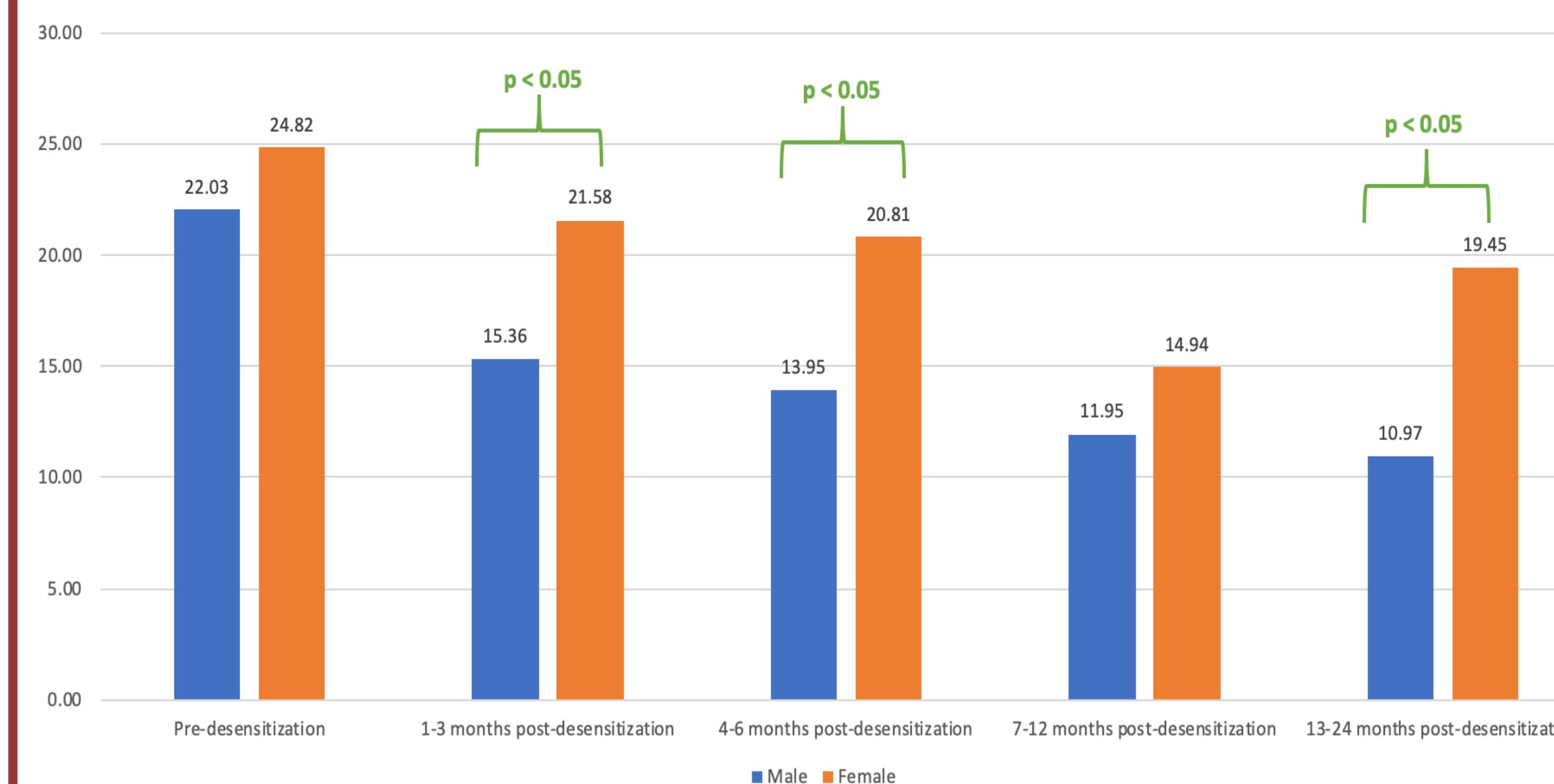
Methods

- A retrospective chart review was conducted of male and female patients who successfully completed aspirin desensitization.
- In order to match our male and female cohorts, we compared them based on age, previous FESS procedures, asthma control test score, exhaled nitric oxide, and daily prednisone dosage prior to the desensitization.
- We tracked patient SNOT 22 scores at the following time points: post-FESS/pre-desensitization, 1-3 months post-desensitization, 4-6 months post-desensitization, 7-12 months post-desensitization, and 13-24 months post-desensitization.

Results

	Males N = 97	Females N = 119	P-Value
Age	49.76 years	47.71 years	0.23
Previous FESS Procedures	2.85	2.74	0.79
Asthma Control Test Score	20.16	19.19	0.31
Exhaled Nitric Oxide	55.58 ppb	54.28 ppb	0.89
Prednisone Dose	9.97 mg/day	10.33 mg/day	0.72

Comparison of Male and Female Cohorts- There were 216 patients who met the inclusion criteria for this study. These patients were divided into male (N = 97) and female (N = 119) cohorts. There were no significant differences ($p > 0.05$) in between the male and female groups across all measured metrics.



Comparison of Male and Female SNOT 22 Score after Aspirin

Desensitization Therapy- The male cohort had a lower mean SNOT 22 score compared to the female cohort across all time points. This difference was statistically significant ($p < 0.05$) at the 2-3 months, 4-6 month, and 13-24 month post-desensitization time points.

Discussion

- Given that the complex pathophysiology contributing to AERD is not fully understood, it is difficult to identify the role of sex in the differential response to desensitization.
- It is currently believed that alteration of prostaglandin E2 signaling, causing mast cell activation and prostaglandin D2 release, contributes to the asthma symptoms seen in AERD.
- Levels of prostaglandin D2 synthase are elevated in response to estrogen exposure, which would potentially exacerbate the disequilibrium of prostaglandin D2 levels even further.
- The variation of cytokine profiles between males and females could contribute to the differential response.

Implications

- This study noted that males have significantly superior long-term sinonasal outcomes with aspirin desensitization compared to females.
- We postulate that variances in cytokine profiles between males and females could contribute to the difference in aspirin desensitization outcomes, however this hypothesis should be the subject of future research
- This difference in responsiveness should be considered when considering treatment options for patients with AERD.