

---

## Comparative Effectiveness of Anti-IL5/5R Versus Anti-IgE in Patients Eligible for Both (FIRE)

Nasloon Ali<sup>1</sup>, Juntao Lyu<sup>1</sup>, Anthony Newell<sup>1</sup>, Mohsen Sadatsafavi<sup>2</sup>, Trung N. Tran<sup>3</sup>, and David B. Price<sup>1,4</sup>, on behalf of the ISAR FIRE Working Group

*Affiliations:* <sup>1</sup>Observational and Pragmatic Research Institute, Singapore, Singapore; <sup>2</sup>Faculty of Pharmaceutical Sciences, University of British Columbia, Vancouver, British Columbia, Canada; <sup>3</sup>AstraZeneca, Gaithersburg, MD, USA; <sup>4</sup>Centre of Academic Primary Care, Division of Applied Health Sciences, University of Aberdeen, Aberdeen, UK.

**Introduction:** The comparative effectiveness of anti-IL5/5R versus anti-IgE among severe asthma patients is unknown.

**Aim:** To assess clinical responses of initiating anti-IL5/5R versus anti-IgE among patients eligible for both.

**Methods:** Patients eligible for both anti-IL5/5R and anti-IgE who started either modality recruited between Jan 2014 and Jan 2021 to the International Severe Asthma Registry (ISAR) were included. Eligibility for both biologics was ascertained by frequently used criteria e.g., baseline biomarkers (BEC, FeNO, and serum IgE), allergen tests, and exacerbations. Post-therapy exacerbation rates were compared after being matched 1:1 by age, pre-therapy exacerbations, gender, and long-term oral corticosteroid (LTOCS) use. A Poisson regression model was used, adjusting for matching and any residual confounding.

**Results:** Among 10,666 ISAR patients from 19 countries, 760 anti-IL5/5R patients and 842 anti-IgE patients were eligible for both modalities and started therapy from 2014. 390 patients from each group were matched by baseline characteristics. Both groups had less exacerbations post-therapy (**Figure**). Anti-IL5/5R patients had a lower adjusted rate of post-therapy exacerbations (IRR:0.75, 95% CI: 0.68-0.84).

**Conclusion:** Among patients eligible for both therapies, anti-IL5/5R patients were less likely to report post-therapy exacerbations as compared to Anti-IgE patients.

**Funding:** ISAR analyses are conducted by the Observational and Pragmatic Research Institute (OPRI) and co-funded by Optimum Patient Care Global (OPCG) and AstraZeneca.

**Abbreviations:** LTOCS: long-term oral corticosteroids, BEC: Blood eosinophil counts, FeNO: fractional exhaled nitric oxide, IgE: Immunoglobulin E

**Figure: Changes in annual exacerbation rates among anti-IgE and anti-IL5/5R patients who were eligible for both modalities and matched by baseline characteristics**

Exacerbations	Anti-IL5/5R	Anti-IgE	P-value
Pre-therapy, mean (SD)	3.42 (4.1)	3.38 (4.15)	0.889
Post-therapy, mean (SD)	1.68 (2.80)	2.23 (4.74)	0.06
Incident rate ratio	0.75 (0.68-0.84)	Reference	<0.001

Abbreviation: SD – Standard Deviations