

Anti-IL-5 Therapy for Chronic Obstructive Pulmonary Disease

Are monoclonal antibody (mAb) therapies targeting IL-5 signaling safe and efficacious?

Background

- Chronic obstructive pulmonary disease (COPD) exacerbations are a major cause of hospital admissions
- Distinct inflammatory phenotypes include eosinophilia, which may drive exacerbations in some patients
- Anti-IL-5 or Anti-IL-5R targeted-therapy may provide benefit for people with eosinophilic-type COPD

Methods

717

Records reviewed for consideration

6

RCTs included comparing IL-5 therapy to placebo (3 Benralizumab, 3 Mepolizumab)

Results of Trials



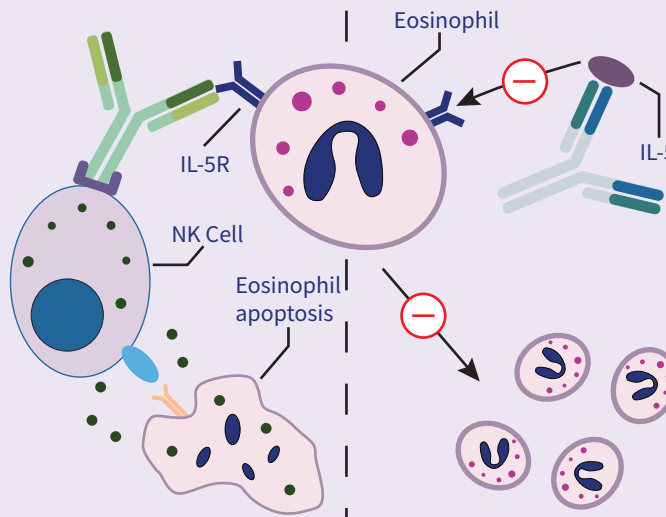
benralizumab

Eosinophil Apoptosis

4,012 Participants

Compared with placebo, in patients with serum eosinophils $>220/\mu\text{L}$:

- 100mg **reduces** rate of exacerbations requiring hospitalization by **37%**
- 10mg **likely reduces** rate of exacerbations requiring hospitalization by **32%**
- Likely **little** or **no difference** in **adverse events** or **side effects** between benralizumab therapy and placebo



Impaired Proliferation



mepolizumab

1,530 Participants

Compared with placebo, in patients with serum eosinophils:

- $>150/\mu\text{L}$, 100mg **reduces** rate of moderate or severe exacerbations by **19%**
- $<150/\mu\text{L}$, 100mg **likely reduces** rate of moderate or severe exacerbations by **8%**
- Likely **little** or **no difference** in **adverse events** or **side effects** between mepolizumab therapy and placebo

Conclusions

- Benralizumab and mepolizumab **likely reduce** the rate of moderate and severe exacerbations in the **highly selected** group of people with both **COPD** and **elevated eosinophils**
- This highlights the importance of **disease phenotyping** in COPD and may play a role in **personalized treatment** strategy in disease management