



EFFECTIVENESS OF TEZEPelumAB IN THE TREATMENT OF SEVERE ASTHMA IN ALLERGIC AND EOSINOPHILIC PHENOTYPES

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BACKGROUND AND IMPORTANCE

Severe asthma (SA) is a heterogeneous disease characterized by different inflammatory phenotypes that influence treatment response. Tezepelumab, has shown efficacy across phenotypes, but real-world data comparing its effectiveness by phenotype is still limited. Evaluating this variability is essential to optimize personalized therapy and clinical outcomes.

AIM AND OBJECTIVES

To evaluate the effectiveness of tezepelumab in patients with SA based on the asthma phenotype.

MATERIAL AND METHODS

Retrospective, observational study (October -2023 to September-2025) in patients with AS treated with tezepelumab. Statistical analysis was performed in R-software using Student's t-test. P <0.05 was considered statistical significance.

Collected Variables

Demographic: age, sex

Asthma phenotype (allergic, eosinophilic)

Clinical trial data

Forced expiratory volume in one second (FEV1)	Fractional exhaled nitric oxide (FENO)	Asthma Control Test (ACT) score	Dyspnea (mMRC scale)	Number of glucocorticoid cycles (GC)	Number of emergency visits/hospitalizations (EH)
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Clinical effectiveness based on asthma phenotype was measured by comparing data at baseline and 10 months of treatment.

RESULTS

Thirty-four patients with SA treated with tezepelumab were included; 81.2% women, 52 years (sd: 15), 66.7% allergic-phenotype (AP), and 33.3% eosinophilic-phenotype (EP).

Allergic-phenotype		Eosinophilic-phenotype	
At baseline	At 10 months	At baseline	At 10 months
FEV1: 74.9% (sd: 28.0)	FEV1: 88.5 (sd: 17.8)	FEV1: 75.6% (sd: 20.8)	FEV1: 81.4 (sd: 17.1)
FENO 42.9 ppb (sd:49.8)	FENO 30.5 ppb (sd: 30.3)	FENO 30.2 ppb (sd:26.1)	FENO 22.3 ppb (sd: 18.5)
ACT 11 (sd: 5)	ACT 17 (sd: 6)	ACT 11 (sd: 4)	ACT 13 (sd: 5)
GC: 3.6	GC: 0.6	GC: 5.6	GC:3.6
Dyspnea: II	Dyspnea: I	Dyspnea: III	Dyspnea: II

EH decreased by 80.1% in allergics and 75.0% in eosinophils. Comparing both phenotypes, statistically significant differences were observed in FENO with a mean reduction of 19.8 ppb greater in the EP (p=0.008) and a mean increase of 4.5 points more in the ACT in AP vs. EP (p=0.033).

CONCLUSIONS

Tezepelumab improved lung function, asthma control, and decreased the GC and emergencies/hospitalizations in both phenotypes. However, greater improvements in asthma control in AP and the airway inflammation in EP were observed.

