Open Respiratory Archives 7 (2025) 100475

Sociedad Española de Neumología y Cirugía Torácica SEPAR

Open Respiratory Archives

www.elsevier.es/ora

Letter to the Editor

Mepolizumab for Eosinophilic COPD: What Matinee Adds to COPD Management?

Mepolizumab para la epoc eosinofílica: ¿qué añade al manejo del epoc el estudio matinee

Dear Editor,

The recent publication of the MATINEE trial in the New England Journal of Medicine marks a significant step forward in the pursuit of personalized therapies for patients with chronic obstructive pulmonary disease (COPD).[1] This large, multicentre phase 3 trial, that recruited more than 800 patients over a 5-year period (including the COVID19 pandemic), demonstrated that the addition of mepolizumab to triple inhaled therapy reduced the annualized rate of moderate or severe exacerbations in patients with an eosinophilic phenotype (≥300 cells/μL), with a favourable safety profile and consistent results across predefined subgroups.

These findings are particularly relevant in the context of an evolving understanding of COPD as a heterogeneous disease with identifiable treatable traits. The 21% reduction in moderate and severe exacerbations rates – even among patients already receiving maximal inhaled therapy – and the up to 104-week clinical effect reinforces the pathogenic role of eosinophilic inflammation in a subset of individuals with COPD and supports the therapeutic targeting of type 2 inflammation. Besides that, the effect on emergency room visits and hospital admissions (35% rate reduction) due to COPD warrants our attention as clinicians, as this is the first time this endpoint is positively reported in clinical trials on biologics in COPD and supports further cost-effectiveness analysis. Moreover, the MATINEE study adds to the growing body of evidence from trials such as METREX, METREO, BOREAS, and NOTUS,[2–4] which collectively support the integration of biologic agents into the therapeutic armamentarium for selected patients (Table 1).

Although no statistically significant improvements were observed in patient-reported outcomes such as lung function, CAT, SGRQ, or E-RS scores, the numerical trends favouring mepolizumab are noteworthy and suggest that some individuals may experience symptom relief not captured by mean differences. Importantly, the trial's design – excluding previous history of asthma, requiring elevated eosinophil counts, and ensuring background optimal triple therapy – strengthens the internal validity of the findings and provides a robust foundation for future clinical implementation.

The implications of MATINEE are twofold. First, it highlights the need for routine phenotyping of COPD patients beyond spirometry and symptoms, particularly through blood eosinophil counts and other biomarkers like FeNO (exhaled nitric oxide), which have been associated with increased responses to biologics in COPD.[5] Second, that biologic therapies can reduce severe exacerbations in well-defined subgroups, which could be seen as a cost-effective measure. This aligns with the broader movement towards precision medicine in respiratory diseases and calls for a careful selection of candidates based on biological pathways involved in the disease to therefore increase clinical success with these expensive drugs.

In conclusion, MATINEE is a well-conducted and timely trial that offers new therapeutic possibilities for a previously underserved subgroup of COPD patients. As the field moves forward, integrating biologic treatments into clinical practice will require careful selection of candidates, cost-effectiveness analyses, and real-world data – but the pathway is now clearer than ever.

Declaration of generative AI and AI-assisted technologies in the writing process

This work represents the opinions from the authors. No AI tool was involved in the development of the work.

Table 1
Baseline characteristics and exacerbation rates among phase III studies of biologics against T2 inflammation in COPD.

Study	Age (yrs)	Female (%)	Smoker (%)	FEV1% pred	CV comorbidity (%)	SGRQ (mean)	≥1 hospital admission, previous year (%)	Ex, previous year	BEC (cell/μL)	Time since COPD diagnosis (yrs)	Ex rates, placebo
MATINEE	66.2	31	28	48%	72	54.6	22	2.3	480	9.1	1.01
BOREAS	65.3	36	27	42%	67	53.1	24	2.2	410	8.7	1.11
NOTUS	64.8	34	25	45%	69	51.9	23	2.1	430	9.4	1.15
TERRANOVA	64.5	26	30	45%	65	52.3	21	2.0	420	8.9	1.19
GALATHEA	65.1	28	29	43%	66	53.5	20	2.1	415	9.0	1.21

Abbreviations: FEV1: forced expiratory volume in 1 second predicted normal; COPD: chronic obstructive pulmonary disease; CV: cardiovascular; SGRQ: Saint George Respiratory Questionnaire; EX: moderate and severe exacerbations in the previous year; BEC: blood eosinophil count. All values refer to the intention-to-treat population from each trial. Placebo event rates correspond to annualized moderate or severe exacerbations in the 52-week follow up.

https://doi.org/10.1016/j.opresp.2025.100475

Funding

This work has not received private or public funding.

Authors' contributions

IMAM, PJRP, and BAN contributed to the conception and design of the manuscript. IMAM conducted the data extraction and prepared the comparative table. PJRP contributed to the interpretation of clinical trial data and drafting of the commentary. BAN supervised the project, provided critical revisions, and approved the final version of the manuscript. All authors read and approved the final manuscript.

Conflicts of interest

IMAM reports no conflicts regarding this manuscript. PJRP reports personal fees and non-financial support from GSK, non-financial support from Novartis AG, non-financial support from Boehringer Ingelheim, non-financial support from Chiesi, grants, personal fees and non-financial support from Laboratorios Menarini, personal fees from Esteve, outside the submitted work. BAN reports grants, personal fees and non-financial support from AstraZeneca, personal fees and non-financial support from Boehringer Ingelheim, personal fees from Bial, personal fees and non-financial support from Chiesi, personal fees from CSL, non-financial support from Grifols, grants and personal fees from GSK, personal fees from MSD, personal fees from PulmonX, personal fees and non-financial support from Sanofi personal fees from Zambon outside the submitted work.

References

1. Sciurba FC, Criner GJ, Christenson SA, Martinez FJ, Papi A, Roche N, et al. Mepolizumab to prevent exacerbations of COPD with an eosinophilic phenotype. N Engl J Med. 2025;392:1710–20.
2. Bhatt SP, Rabe KF, Hanania NA, Vogelmeier CF, Cole J, Bafadhel M, et al. Dupilumab for COPD with type 2 inflammation indicated by eosinophil counts. N Engl J Med. 2023;389:205–14.
3. Bhatt SP, Rabe KF, Hanania NA, Vogelmeier CF, Bafadhel M, Christenson SA, et al. Dupilumab for COPD with blood eosinophil evidence of type 2 inflammation. N Engl J Med. 2024;390:2274–83.
4. Criner GJ, Celli BR, Brightling CE, Agusti A, Papi A, Singh D, et al. Benralizumab for the prevention of COPD exacerbations. N Engl J Med. 2019;381:1023–34.
5. García-Río F, Alcázar-Navarrete B, Castillo-Villegas D, Cilloniz C, García-Ortega A, Leiro-Fernández V, et al. Biological biomarkers in respiratory diseases. Arch Bronconeumol. 2022;58:323–33.

Isabel Maria Alcázar-Martínez[a,*], Pedro Jose Romero-Palacios[a], Bernardino Alcázar-Navarrete[a,b,c]

[a] *Departamento de Medicina, Universidad de Granada, Granada, Spain*
[b] *Respiratory Department, Hospital Universitario Virgen de las Nieves, Instituto de Investigación Biosanitaria ibs.GRANADA, Granada, Spain*
[c] *CIBER Enfermedades Respiratorias, Instituto de Salud Carlos III, Madrid, Spain*

[*] Corresponding author.
E-mail address: isabelalcazar@correo.ugr.es
(I.M. Alcázar-Martínez).

Received 11 June 2025
Accepted 22 July 2025