Role and Expectation of Triple Inhaler in Asthma Treatment

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EXPERT REVIEW OF RESPIRATORY MEDICINE
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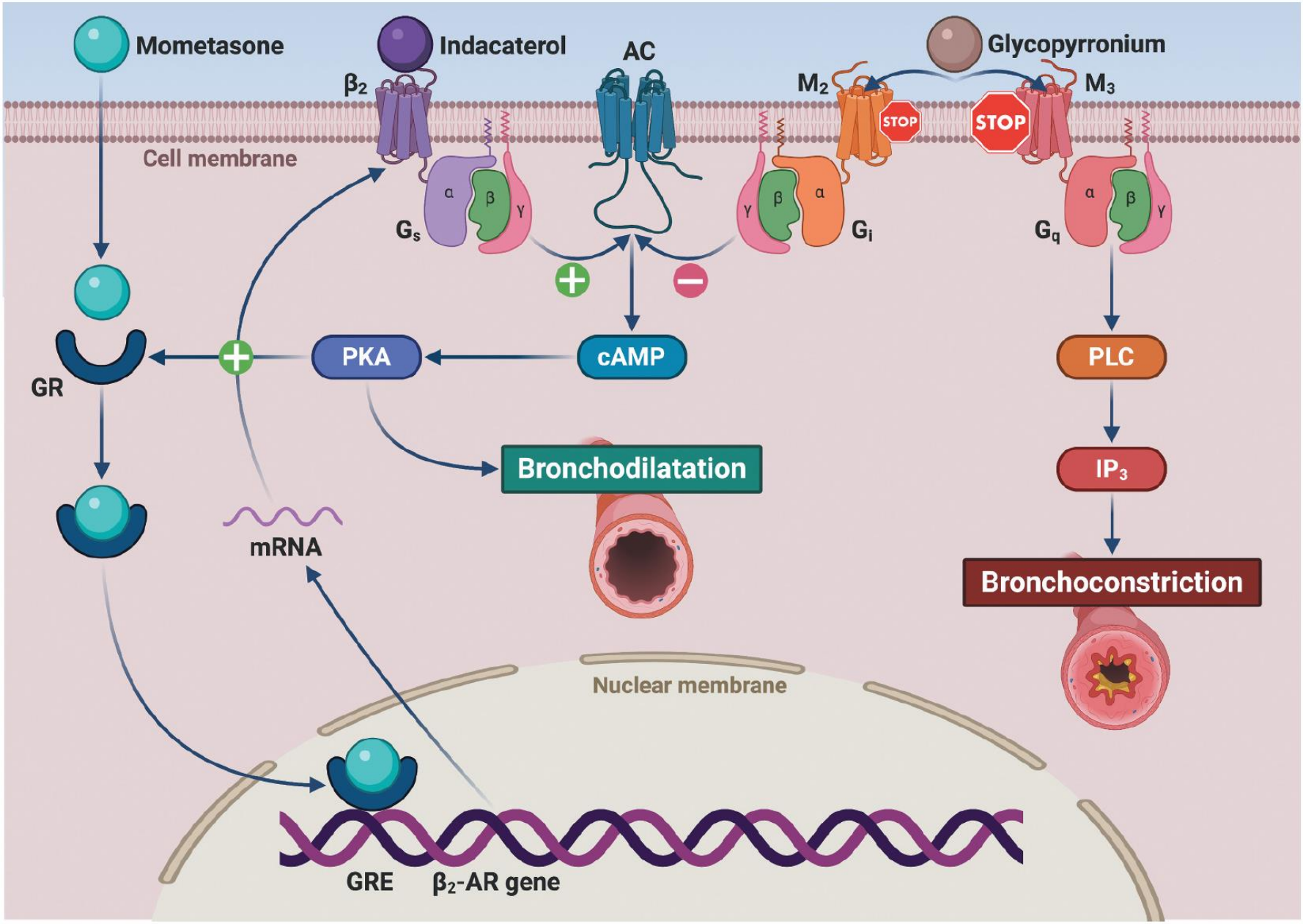
REVIEW

Indacaterol/glycopyrronium/mometasone fixed dose combination for uncontrolled asthma

Corrado Pelaia [a], Claudia Crimi [b], Nunzio Crimi [b], Luisa Ricciardi [c], Nicola Scichilone [d], Giuseppe Valenti [e], Ornella Bonavita [f], Stefano Andaloro [f], Paolo Morini [f], Andrea Rizzi [f] and Girolamo Pelaia [a]



Pelaia C. Expert Rev Respir Med 2021: 1-13.

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DOI: 10.1111/all.14766

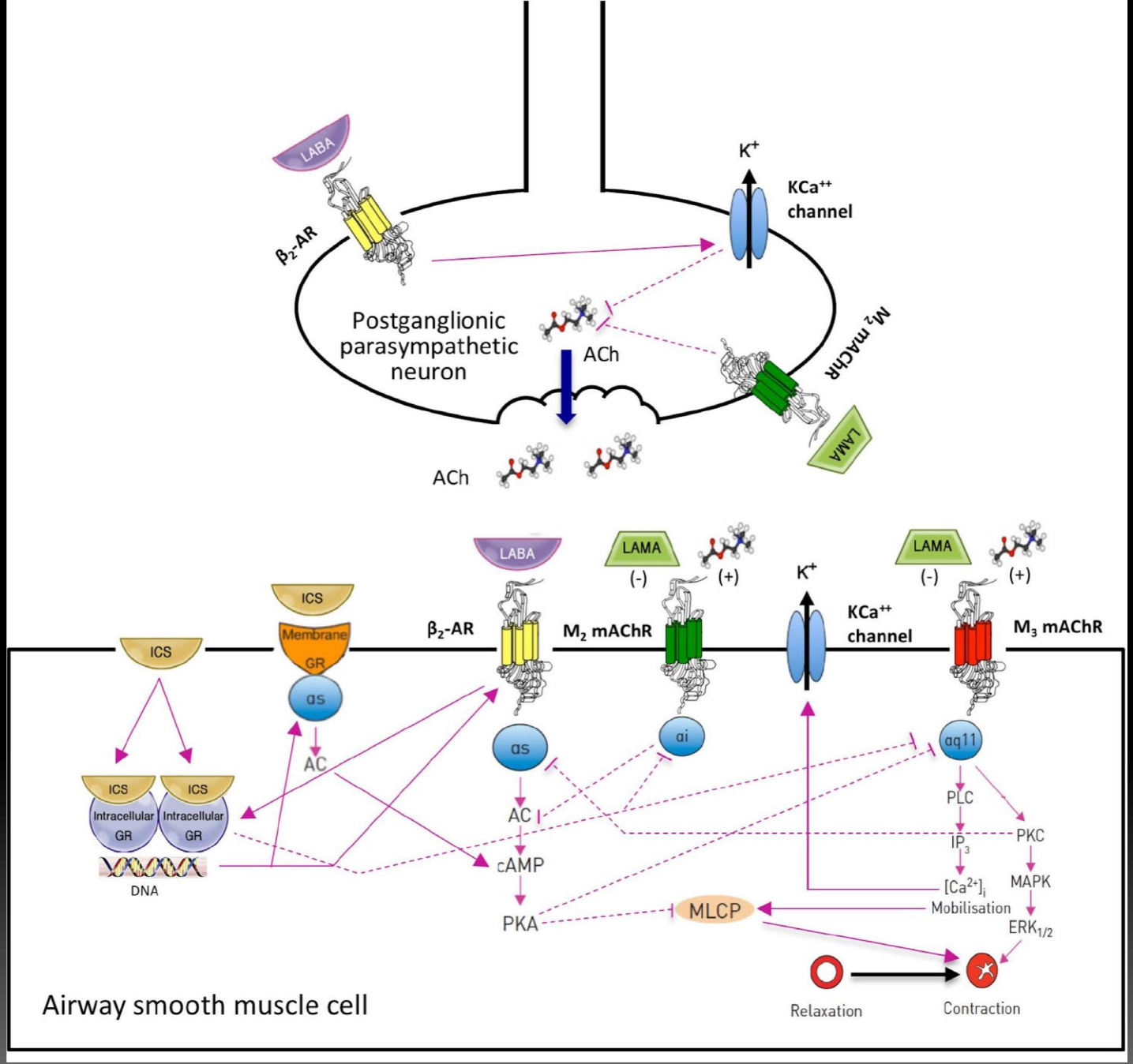
Allergy EUROPEAN JOURNAL OF ALLERGY AND CLINICAL IMMUNOLOGY EAACI WILEY

REVIEW ARTICLE

Long-acting muscarinic antagonists and small airways in asthma: Which link?

Mario Cazzola[1] | Luigino Calzetta[2] | Maria Gabriella Matera[3]

Cazzola M. Allergy 2021; 76: 1990-2001.



Cazzola M. Allergy 2021; 76: 1990-2001.

Structure	Branch generation	Distribution of mAChR subtypes and β-AR subtypes (abundance, fmol·mg^{-1} of protein)			
		M_2 mAChR	M_3 mAChR	β_1-AR	β_2-AR
Trachea	0				
Primary bronchi	1				
Secondary bronchi	2				
Tertiary bronchi	3	47	48	0	50
Small bronchi	4				
Bronchioles	5-7				
Terminal bronchioles	8-16	11	28	0	85
Respiratory bronchioles	17-19	27	0	98	205
Alveolar ducts and sacs	20-23				

Cazzola M. Allergy 2021; 76: 1990-2001.

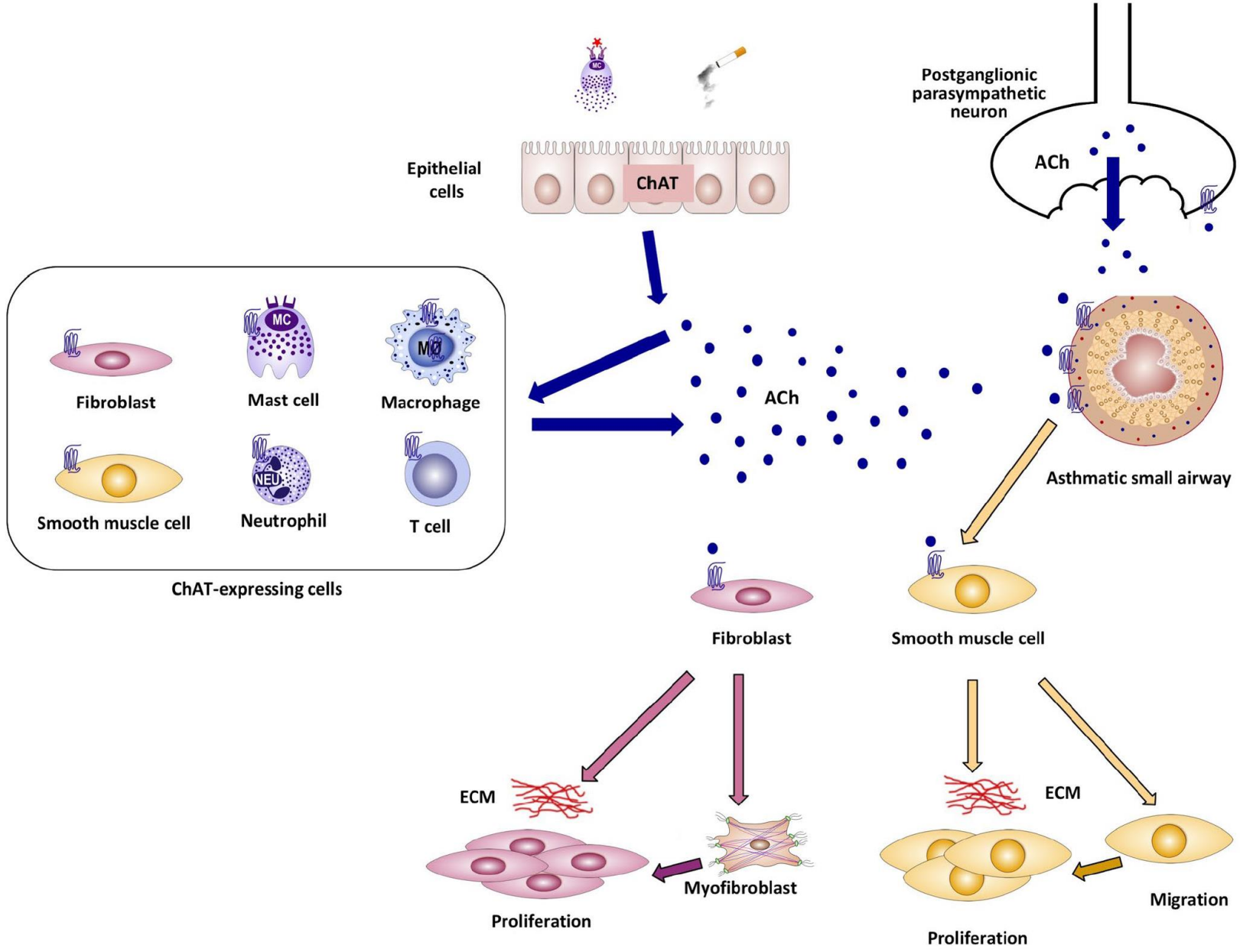


FIGURE 3 Potential effects of ACh on asthmatic small airways. ACh, acetylcholine; ChAT, choline acetyltransferase; ECM, extracellular matrix

Cazzola M. Allergy 2021; 76: 1990-2001.

Adv Ther
https://doi.org/10.1007/s12325-021-02025-w

REVIEW

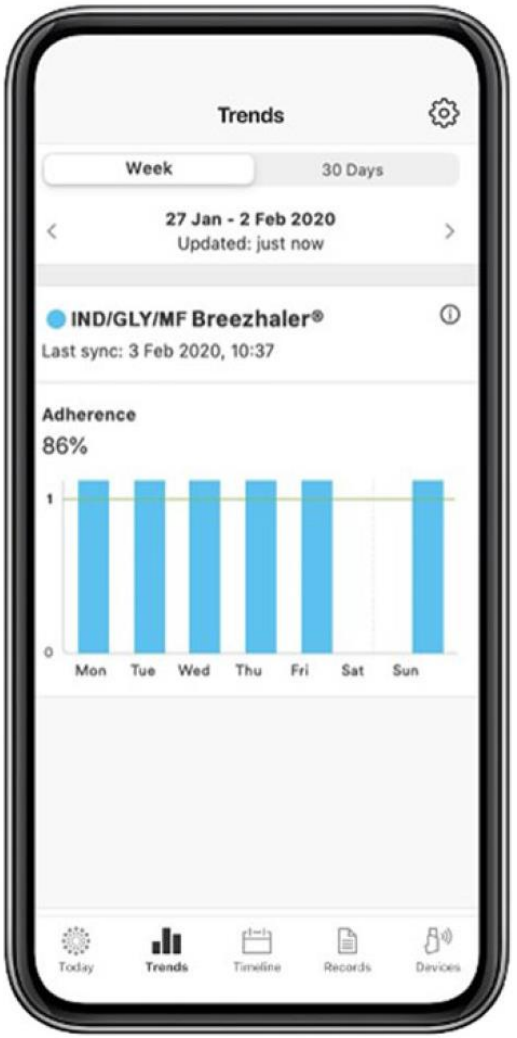
A Review of the Unique Drug Development Strategy of Indacaterol Acetate/Glycopyrronium Bromide/ Mometasone Furoate: A First-in-Class, Once-Daily, Single-Inhaler, Fixed-Dose Combination Treatment for Asthma

Dominic Brittain · Peter D'Andrea · Emilie Gruen · Motoi Hosoe · Devendra Jain · Juergen Jauernig · Abhijit Pethe · Emil Scosyrev · Ana-Maria Tanase · Hanns-Christian Tillmann

Table 1 Doses of MF as monotherapy and as fixed-dose combination used in the clinical development program for IND/GLY/MF and IND/MF

	Monotherapy	IND/MF	IND/GLY/MF
MF			
Dose level (strength)	Via Twisthaler® [30]	Via Breezhaler® [38]	Via Breezhaler® [36]
Low	200 µg	80 µg	Not developed
Medium	400 µg	160 µg	80 µg
High	800 µg	320 µg	160 µg

Brittain D. Adv Ther 2022 [Epub].



Brittain D. Adv Ther 2022 [Epub].

Table 2 Overview of the PLATINUM phase 3 clinical development program

Study (NCT number)	Study duration (weeks)	Study treatment arms	*N*
QUARTZ (NCT02892344)	12	IND/MF low-dose (150/80 µg o.d.) via Breezhaler®	398
		MF low-dose (200 µg o.d.) via Twisthaler®	404
PALLADIUM (NCT02554786)	52	IND/MF medium-dose (150/160 µg o.d.) via Breezhaler®	439
		IND/MF high-dose (150/320 µg o.d.) via Breezhaler®	445
		MF medium-dose (400 µg o.d.) via Twisthaler®	444
		MF high-dose (800 µg [400 µg b.i.d.]) via Twisthaler®	442
		SAL/FLU high-dose (50/500 µg b.i.d.) via Diskus®	446
IRIDIUM (NCT02571777)	52	IND/GLY/MF medium-dose (150/50/80 µg o.d.) via Breezhaler®	620
		IND/GLY/MF high-dose (150/50/160 µg o.d.) via Breezhaler®	619
		IND/MF medium-dose (150/160 µg o.d.) via Breezhaler®	617
		IND/MF high-dose (150/320 µg o.d.) via Breezhaler®	618
		SAL/FLU high-dose (50/500 µg b.i.d.) via Diskus®	618
ARGON (NCT03158311)	24	IND/GLY/MF medium-dose (150/50/80 µg o.d.) via Breezhaler®	474
		IND/GLY/MF high-dose (150/50/160 µg o.d.) via Breezhaler®	476
		SAL/FLU high-dose (50/500 µg b.i.d.) via Diskus® + TIO 5 µg o.d. via Respimat®	475

Once-daily, single-inhaler mometasone–indacaterol–glycopyrronium versus mometasone–indacaterol or twice-daily fluticasone–salmeterol in patients with inadequately controlled asthma (IRIDIUM): a randomised, double-blind, controlled phase 3 study

*Huib A M Kerstjens, Jorge Maspero, Kenneth R Chapman, Richard N van Zyl-Smit, Motoi Hosoe, Ana-Maria Tanase, Catherine Lavecchia, Abhijit Pethe, Xu Shu, Peter D'Andrea, on behalf of the IRIDIUM trial investigators**

Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.

Inclusion criteria

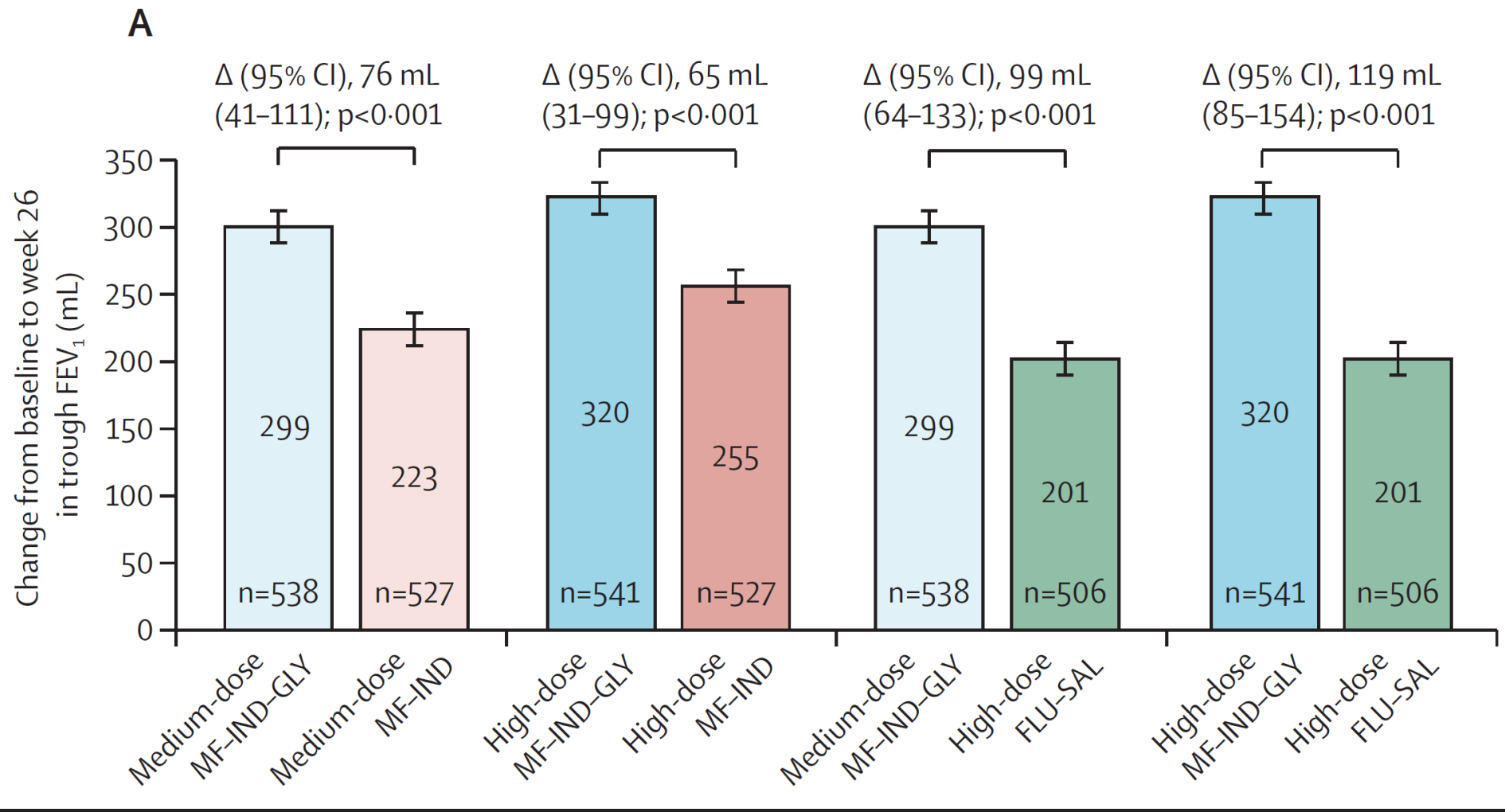
- Age 18~75
- FEV1 < 80%
- BDR 12% & 200mL
- ACQ-7 at least 1.5
- At least one AE
- Medium or high dose ICSLABA

Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.

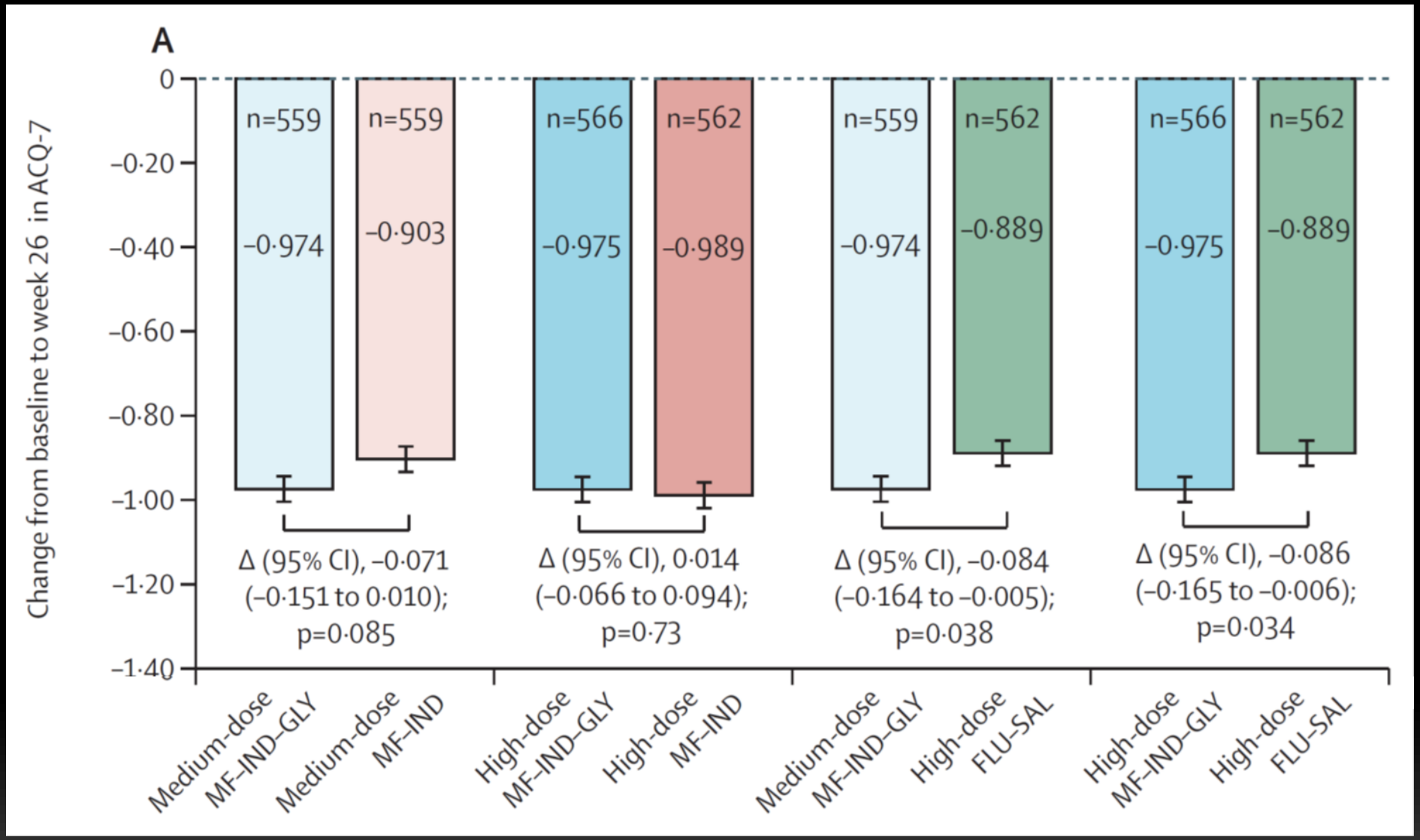
Primary outcome

- Change from baseline in trough FEV1
  - Medium dose Triple vs Medium dose ICSLABA
  - High dose Triple vs High dose ICSLABA

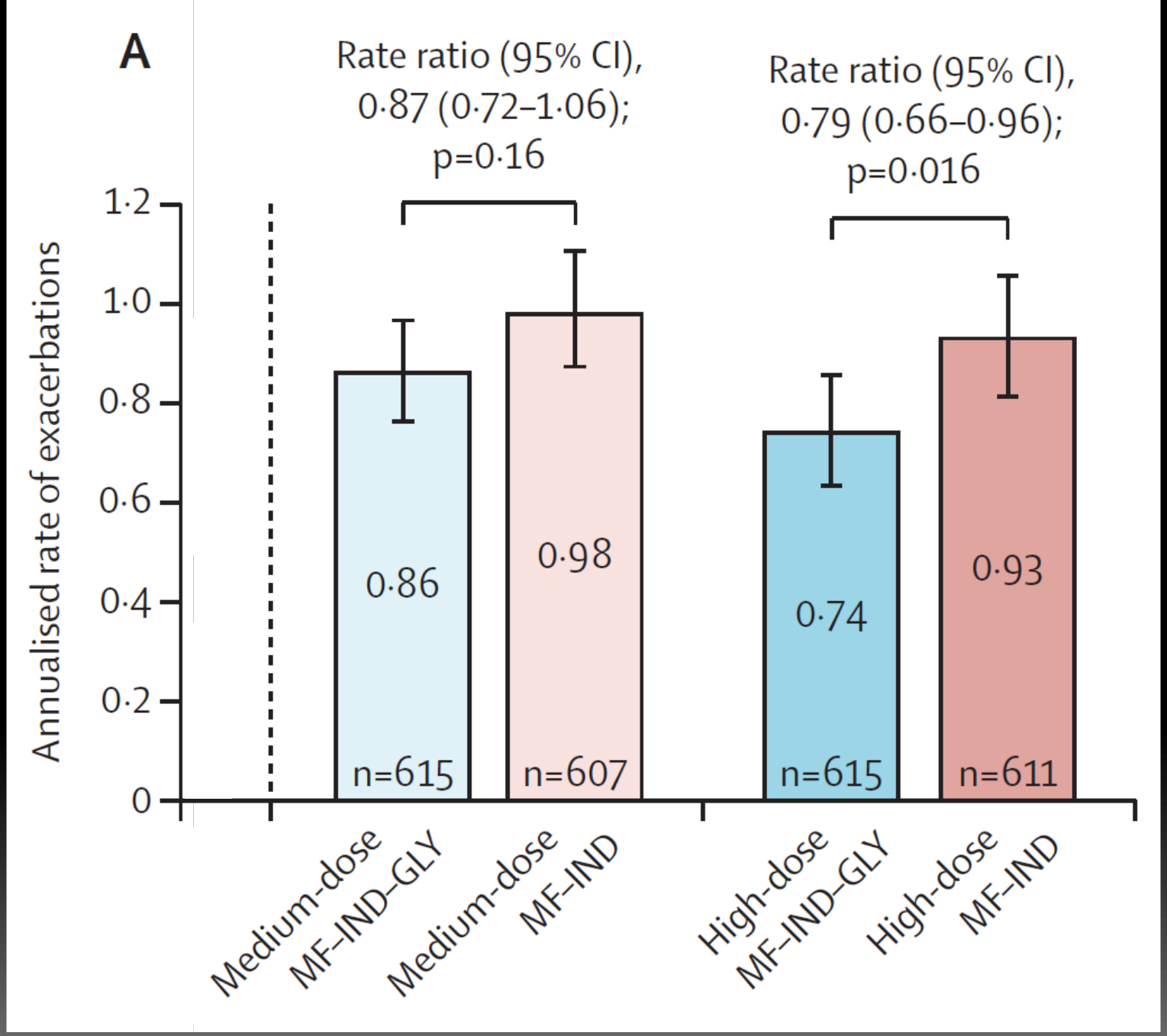
Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.



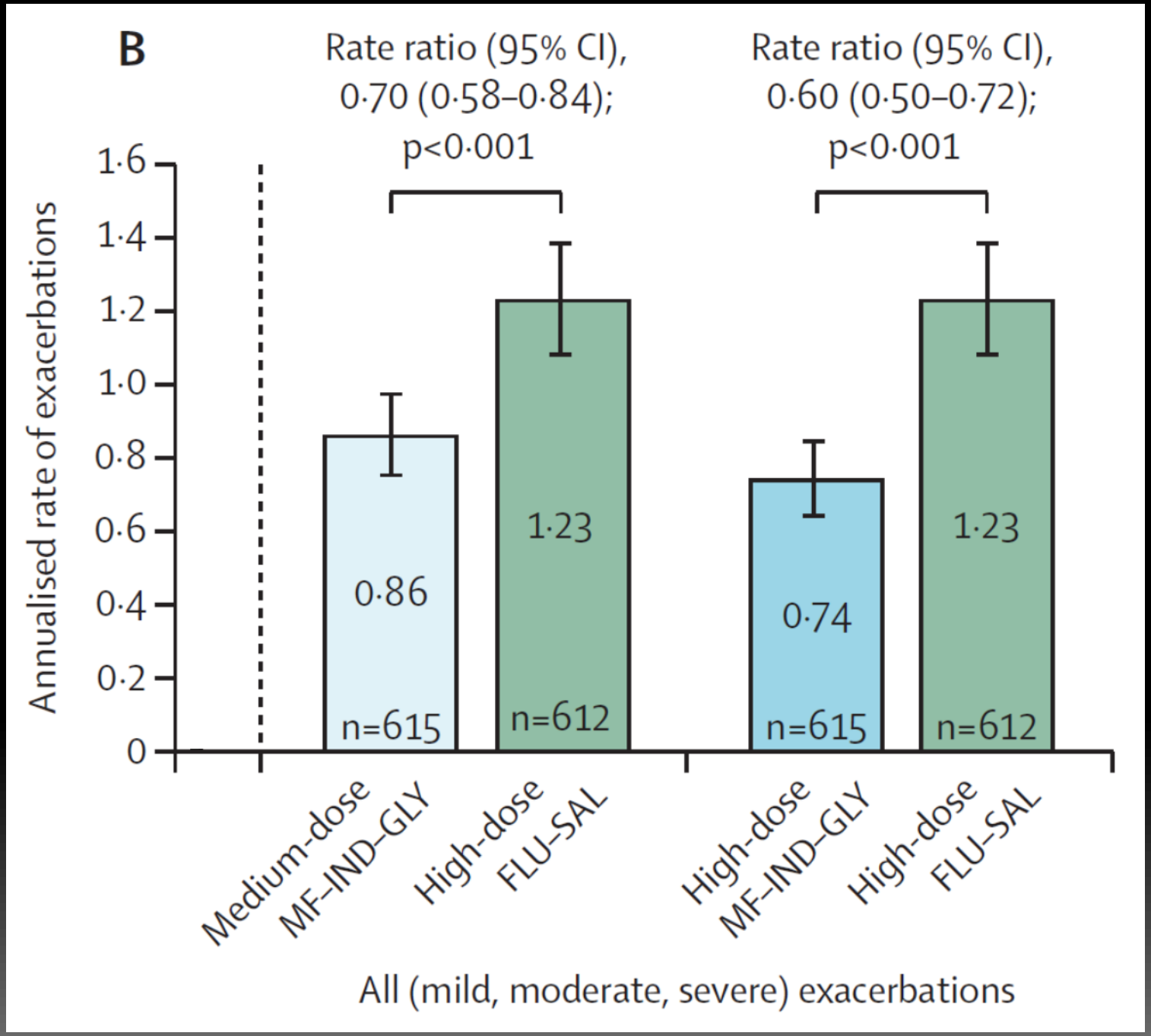
Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.



Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.



Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.



Kerstjens HAM. Lancet Respir Med 2020, 8(10):1000-1012.

BMJ Open Respiratory Research

Efficacy of one time per day, single-inhaler indacaterol/glycopyrronium/mometasone in patients with inadequately controlled asthma: post hoc analysis of IRIDIUM study in Asian population

Hironori Sagara,[1] Nathalie Barbier,[2] Tsuyoshi Ishii,[3] Hajime Yoshisue ,[3] Ivan Nikolaev,[2] Motoi Hosoe,[2] Yasuhiro Gon[4]

Sagara H. BMJ Open Respir Res 2021; 8.

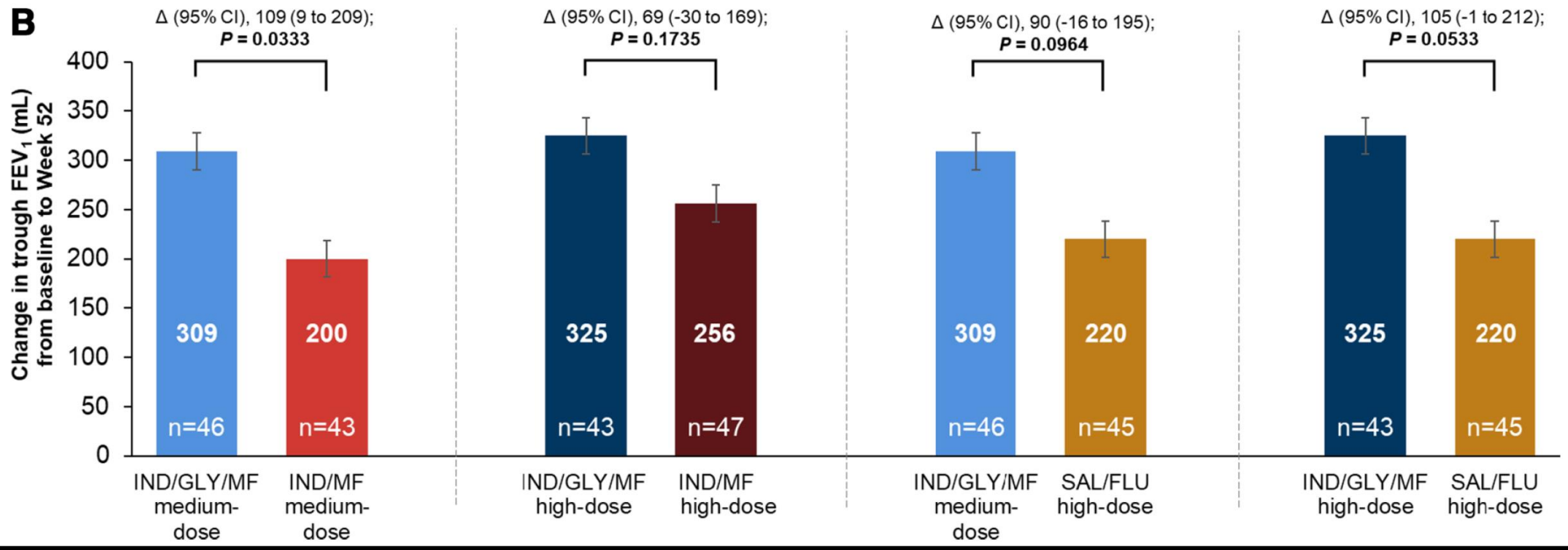
This is a post hoc analysis of data from the IRIDIUM study[14] in patients from Asian countries (Japan, China, Philippines, Vietnam and Thailand).

Sagara H. BMJ Open Respir Res 2021; 8.

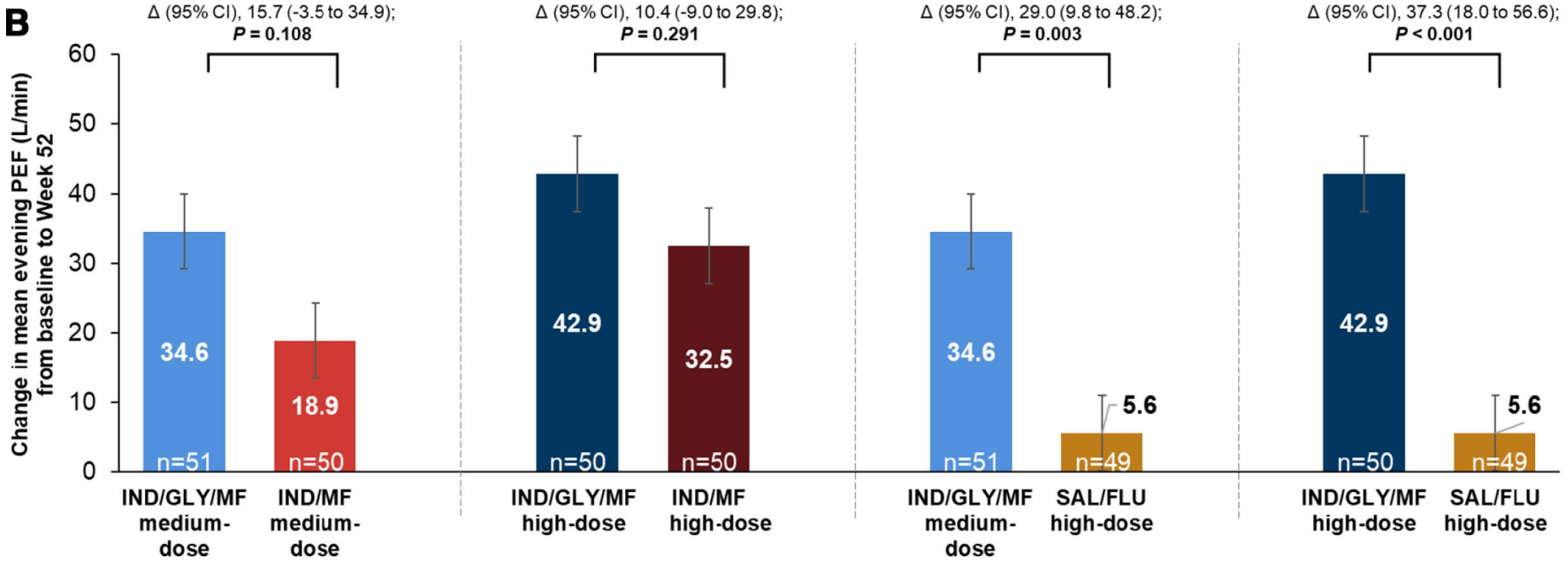
Table 1 Baseline demographics and clinical characteristics (randomised set)

	IND/GLY/MF medium-dose N=52	IND/GLY/MF high-dose N=52	IND/MF medium-dose N=51	IND/MF high-dose N=51	SAL/FLU high-dose N=52
Age, years	52.4±11.57	49.4±11.72	50.9±12.50	52.4±10.52	51.9±12.30
Women, n (%)	28 (53.8)	37 (71.2)	37 (72.5)	34 (66.7)	36 (69.2)
Number of asthma exacerbations that required treatment in the 12 months prior to start of study, n (%)					
1	39 (75.0)	41 (78.8)	34 (66.7)	31 (60.8)	41 (78.8)
2	10 (19.2)	10 (19.2)	16 (31.4)	12 (23.5)	8 (15.4)
3	3 (5.8)	0	0	3 (5.9)	0
≥4	0	1 (1.9)	1 (2.0)	5 (9.8)	3 (5.8)
Never smoked, n (%)	44 (84.6)	48 (92.3)	47 (92.2)	45 (88.2)	45 (86.5)
Baseline ACQ-7 score*	2.2±0.46	2.3±0.67	2.3±0.45	2.4±0.52	2.3±0.40
Pre-bronchodilator FEV_1, % predicted	55.6±14.80	57.1±13.65	56.4±11.50	53.6±14.33	54.3±13.59
FEV_1 reversibility after salbutamol inhalation, % increase†	26.0±15.13	28.2±12.23	27.0±13.26	29.2±13.59	26.7±13.44
Prior asthma treatment, n (%)					
LABA/ICS medium-dose	32 (61.5)	32 (61.5)	35 (68.6)	36 (70.6)	29 (55.8)
LABA/ICS high-dose	19 (36.5)	19 (36.5)	15 (29.4)	15 (29.4)	23 (44.2)

Sagara H. BMJ Open Respir Res 2021; 8.



Sagara H. BMJ Open Respir Res 2021; 8.



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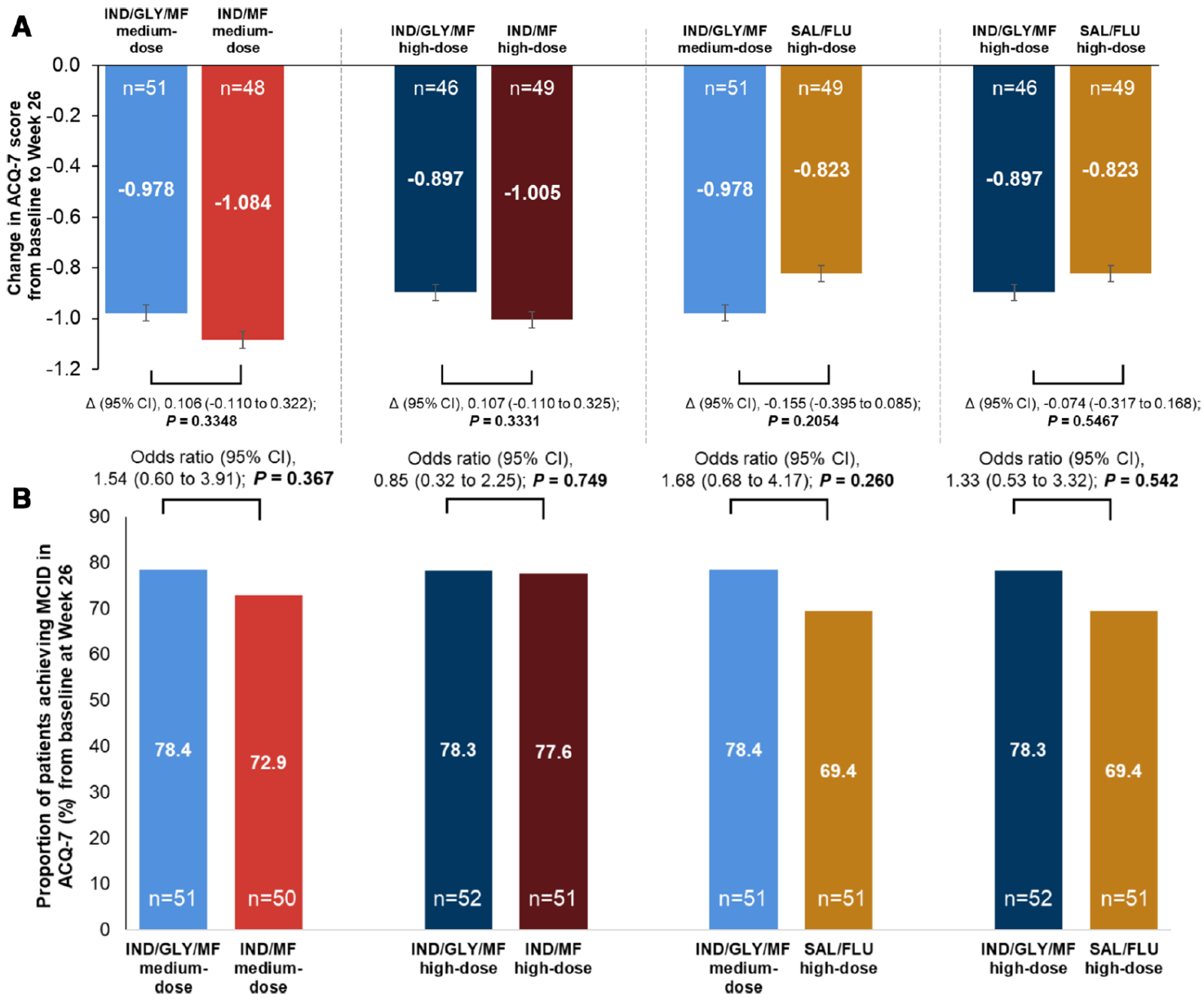
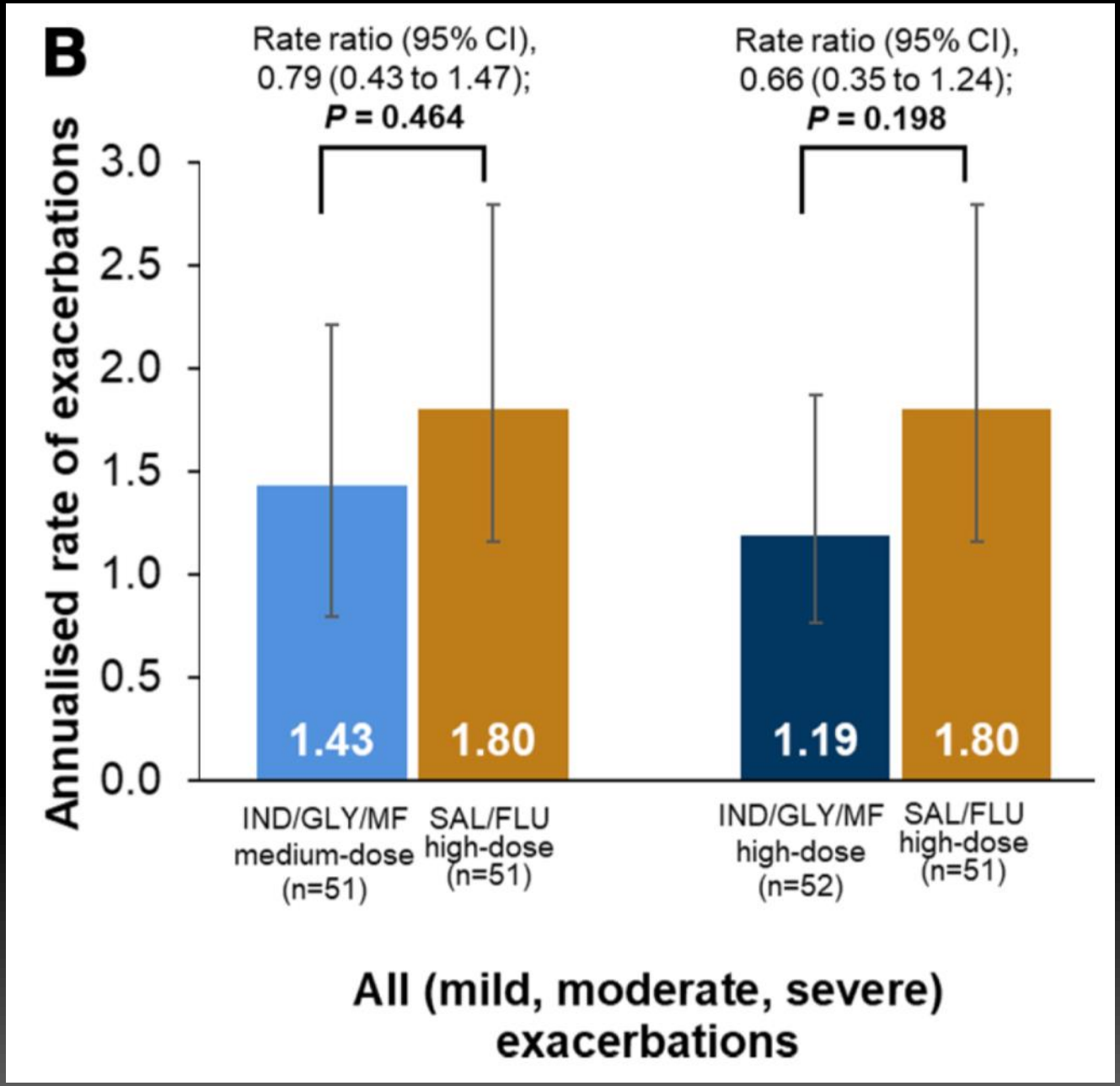


Sagara H. BMJ Open Respir Res 2021; 8.



Sagara H. BMJ Open Respir Res 2021; 8.

Respiratory Medicine 170 (2020) 106021

Contents lists available at ScienceDirect

Respiratory Medicine

journal homepage: http://www.elsevier.com/locate/rmed

Fixed-dose combination of indacaterol/glycopyrronium/mometasone furoate once-daily *versus* salmeterol/fluticasone twice-daily plus tiotropium once-daily in patients with uncontrolled asthma: A randomised, Phase IIIb, non-inferiority study (ARGON)

Christian Gessner [a,*], Oliver Kornmann [b], Jorge Maspero [c], Richard van Zyl-Smit [d], Matthias Krüll [e], Anna Salina [f], Pritam Gupta [g], Sebastien Bostel [f], Sebastian Fucile [h], Lorena Garcia Conde [f], Pascal Pfister [f]

Gessner C. Respir Med 2020, 170:106021.

+

VS

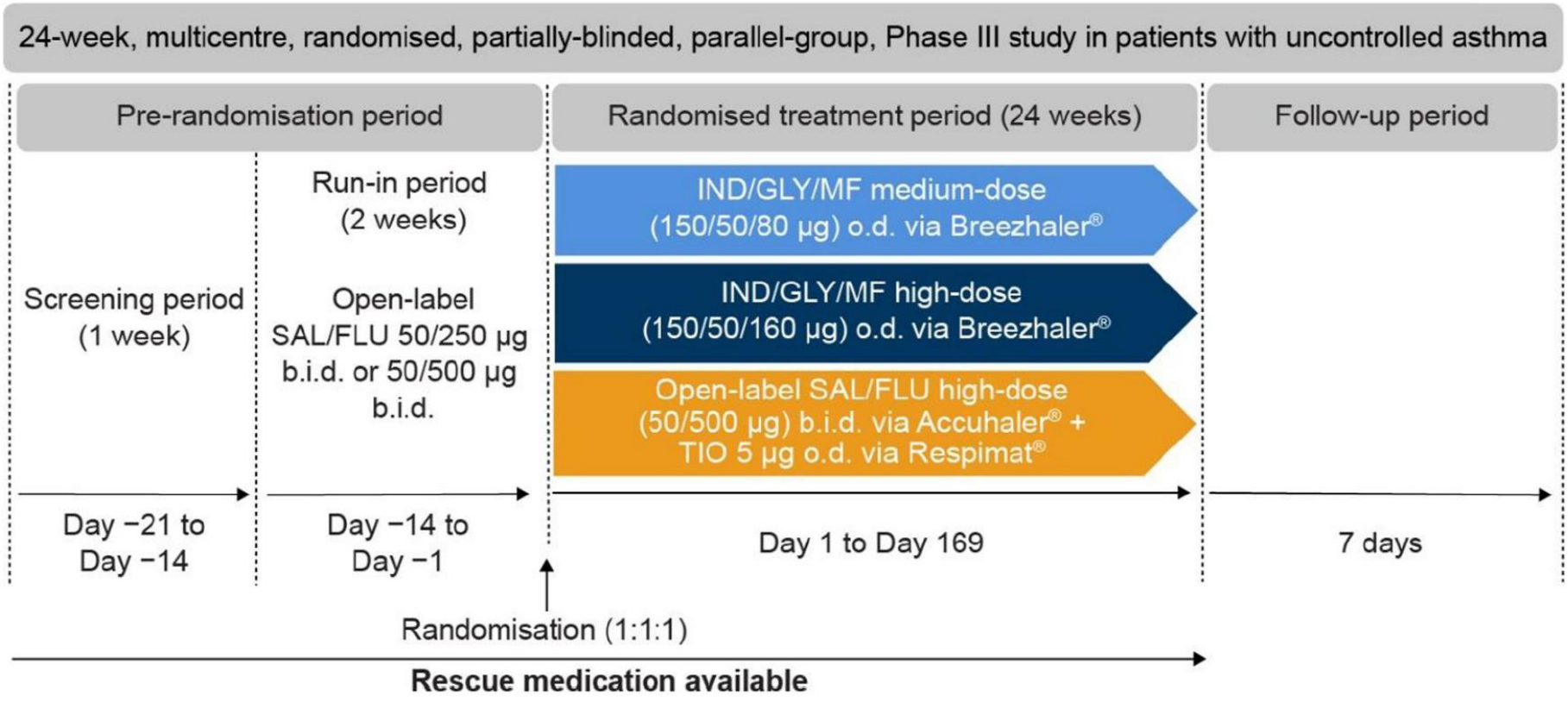
Inclusion criteria

- Medium or high dose ICSLABA
- History of 1 severe exacerbation
- ACQ-7 ≥ 1.5
- FEV1 < 85%

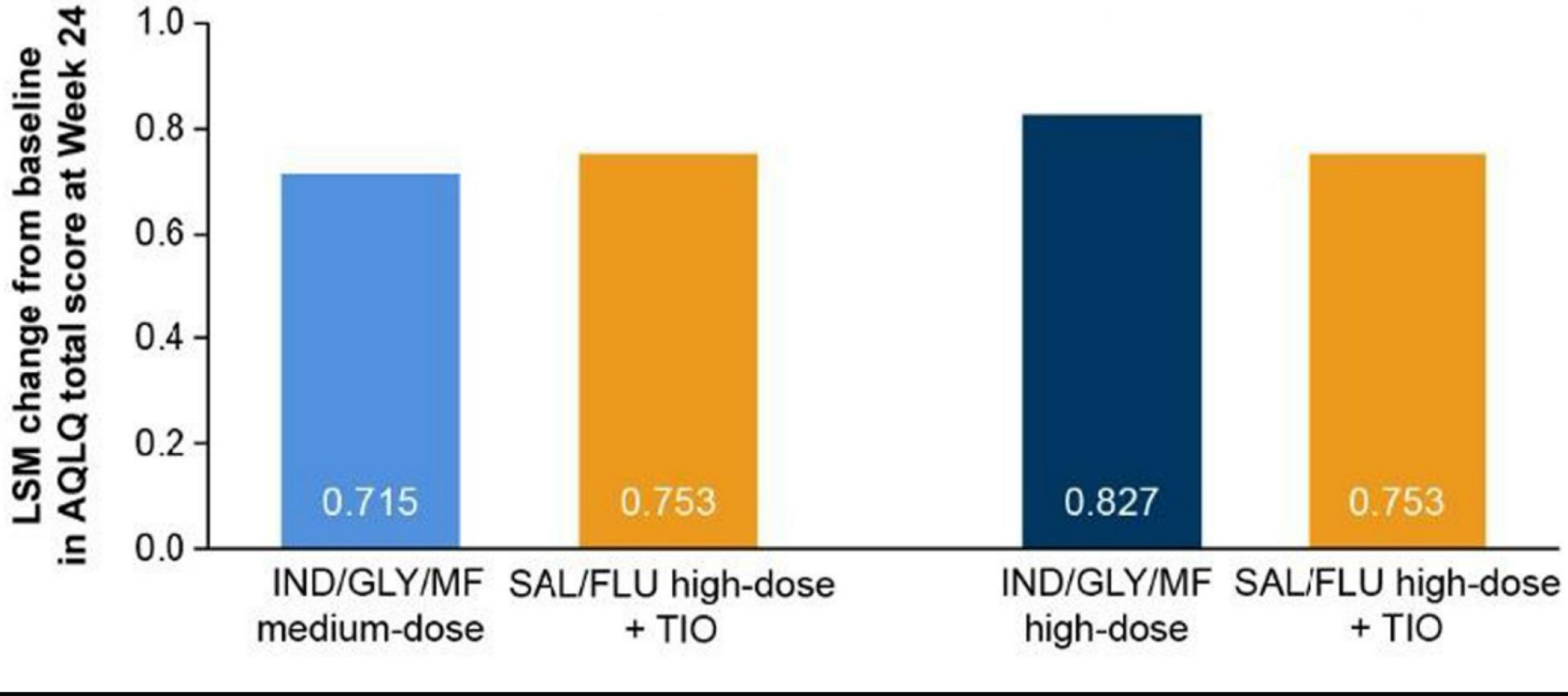
Gessner C. Respir Med 2020, 170:106021.

Primary endpoint

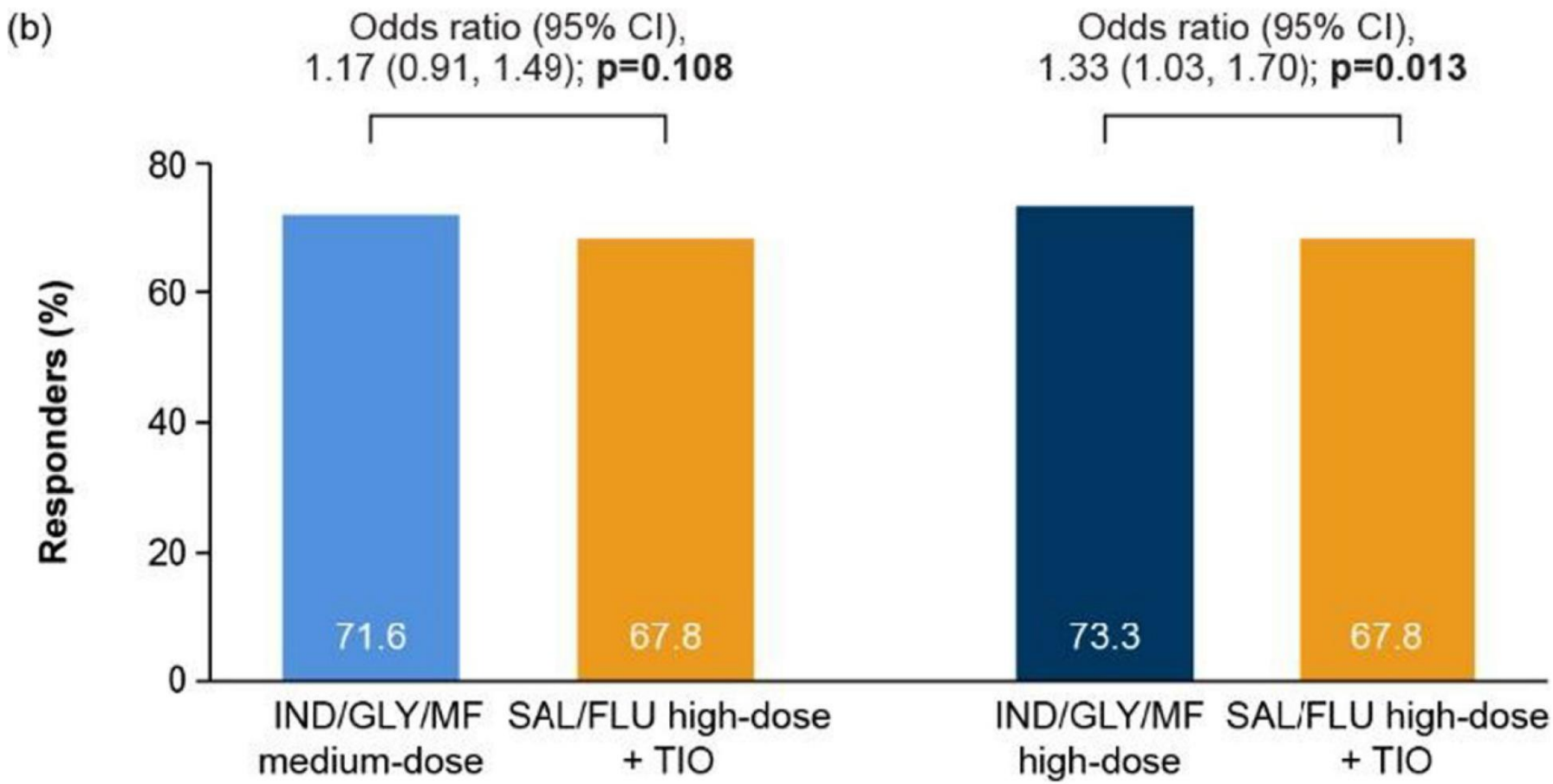
- Non-inferiority of AQLQ



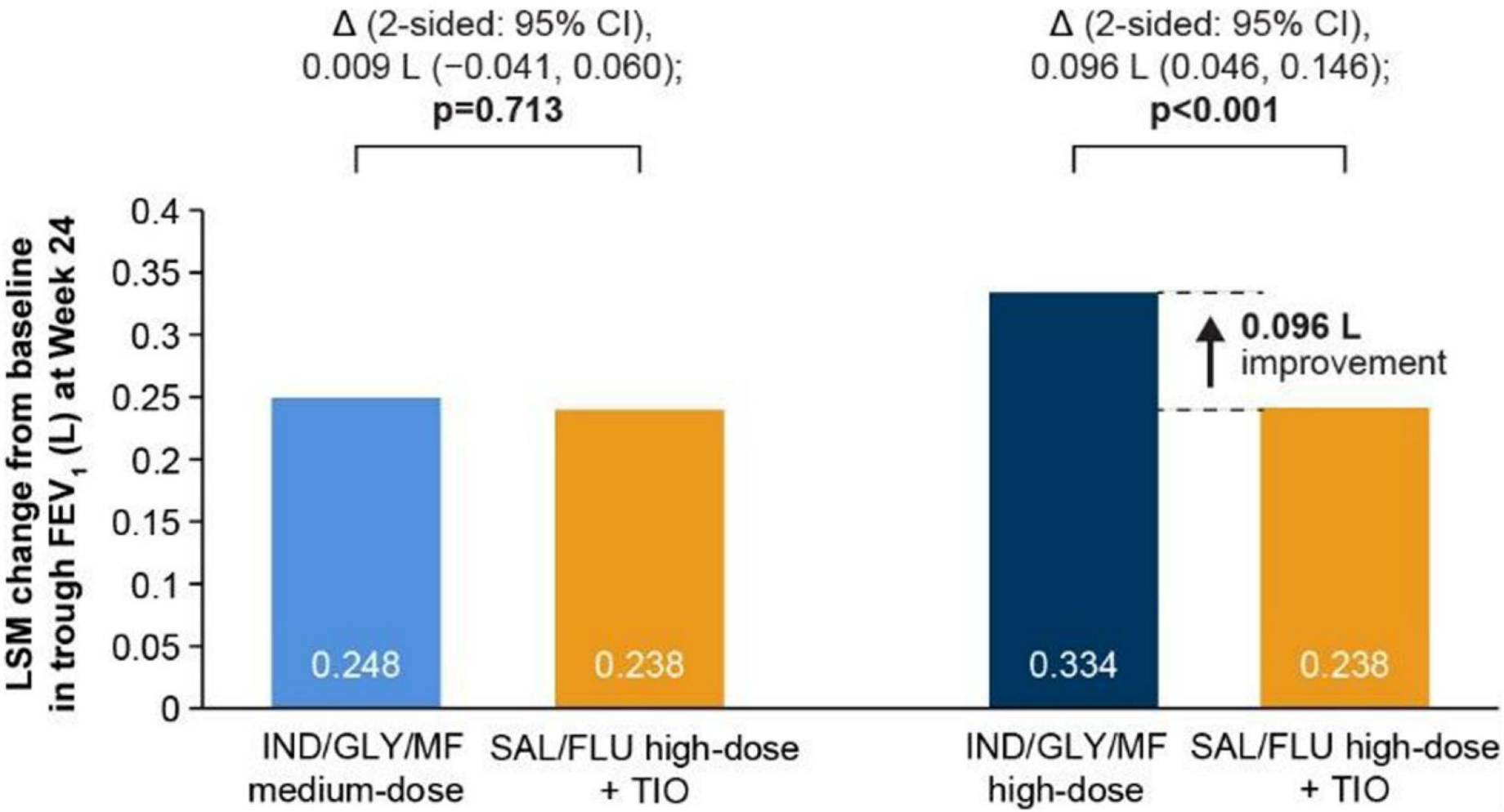
Gessner C. Respir Med 2020, 170:106021.



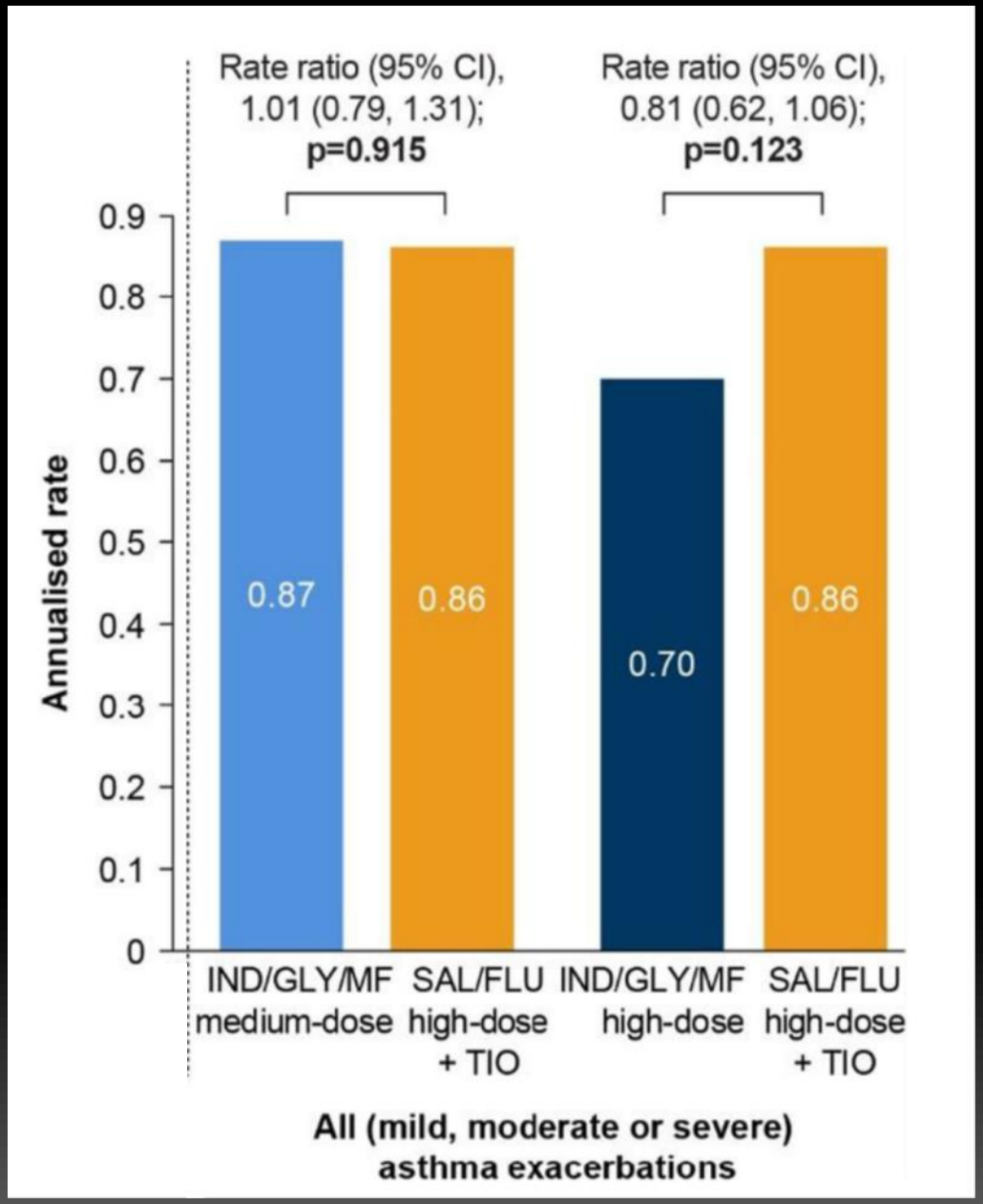
Gessner C. Respir Med 2020, 170:106021.



Gessner C. Respir Med 2020, 170:106021.



Gessner C. Respir Med 2020, 170:106021.



Gessner C. Respir Med 2020, 170:106021.

Journal of Experimental Pharmacology

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COMMENTARY

Clinical Interpretation of Efficacy Outcomes in Pharmacological Studies on Triple Fixed-Dose Combination Therapy for Uncontrolled Asthma: Assessment of IRIDIUM and ARGON Studies

Paola Rogliani [1]
Luigino Calzetta [2]

Abstract: The IRIDIUM and ARGON studies provided positive findings concerning the benefits of the once-daily triple mometasone furoate/indacaterol/glycopyrronium (MF/IND/GLY) fixed dose combination (FDC) for the treatment of uncontrolled asthma, at the least by

Table 1 Clinical effect of MF/IND/GLY FDC administered at different ICS doses compared to active comparators on efficacy outcomes in asthmatic patients as reported in the IRIDIUM[5] and ARGON[6] studies

Outcome	Treatment	Active comparator	Delta	Suggested MCID	Beneficial clinically relevant effect
FEV_1	MD-MF/IND/GLY	MD-MF/IND	76 mL	>60 mL*	Yes
	MD-MF/IND/GLY	HD-FLU/SAL	99 mL		Yes
	HD-MF/IND/GLY	HD-MF/IND	65 mL		Yes
	HD-MF/IND/GLY	HD-FLU/SAL	119 mL		Yes
	HD-MF/IND/GLY	HD-FLU/SAL + TIO	96 mL		Yes
Morning PEF	HD-MF/IND/GLY	HD-FLU/SAL + TIO	26.67%	>5.39%#	Yes
Evening PEF	HD-MF/IND/GLY	HD-FLU/SAL + TIO	28.72%		Yes
All exacerbations (mild, moderate, and severe)	MD-MF/IND/GLY	HD-FLU/SAL	−30%	>-20%	Yes
	HD-MF/IND/GLY	HD-MF/IND	−21%		Yes
	HD-MF/IND/GLY	HD-FLU/SAL	−40%		Yes
Moderate or severe exacerbations	MD-MF/IND/GLY	HD-FLU/SAL	−19%		Borderline
	HD-MF/IND/GLY	HD-FLU/SAL	−36%		Yes
Moderate exacerbations	HD-MF/IND/GLY	HD-FLU/SAL + TIO	−43%		Yes
Severe exacerbations	HD-MF/IND/GLY	HD-MF/IND	−22%		Yes
	HD-MF/IND/GLY	HD-FLU/SAL	−42%		Yes
ACQ-7	HD-MF/IND/GLY	HD-FLU/SAL	+8.2% responders	>0.5 points	A greater proportion of patients achieved the MCID
AQLQ	HD-MF/IND/GLY	HD-FLU/SAL + TIO	+8.1% responders	>0.5 points	A greater proportion of patients achieved the MCID
SGRQ	HD-MF/IND/GLY	HD-FLU/SAL + TIO	−2.00	>4 units	No

Rogliani P. J Exp Pharmacol 2022; 14: 1-5.

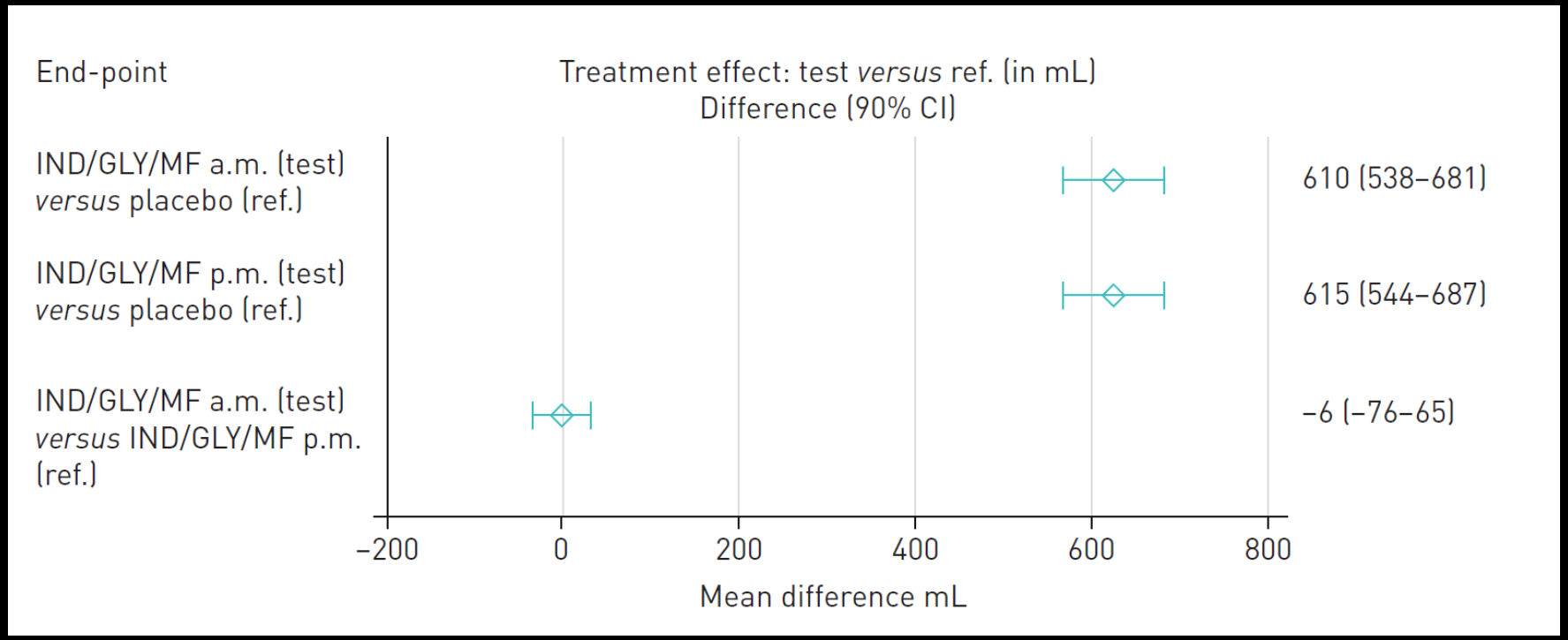
ERJ open research

ORIGINAL ARTICLE
ASTHMA

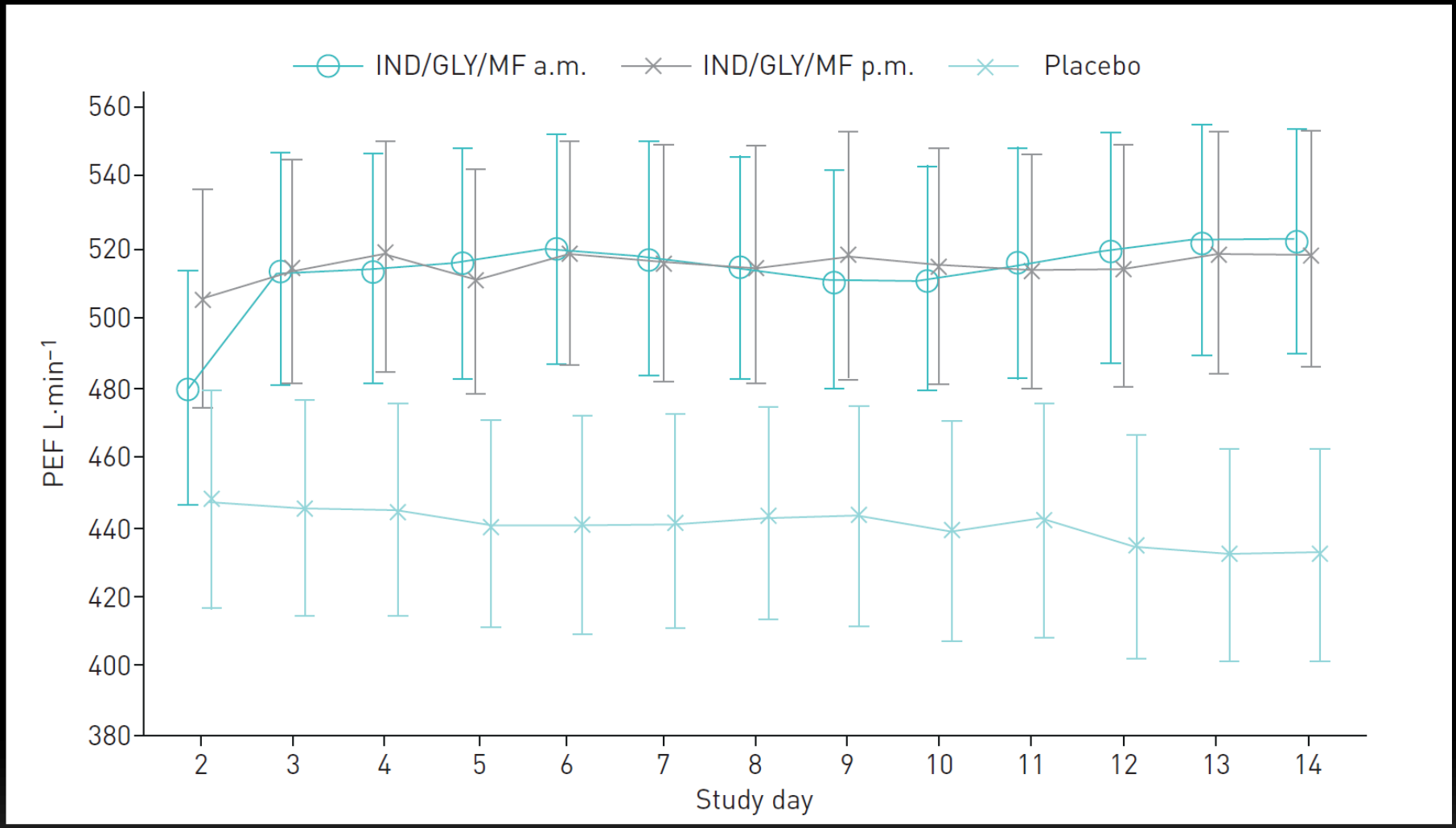
Lung function improvements following inhaled indacaterol/glycopyrronium/mometasone furoate are independent of dosing time in asthma patients: a randomised trial

Jutta Beier[1], Henrik Watz[2], Zuzana Diamant[3,4,5], Jens M. Hohlfeld[6,7,8], Dave Singh[9], Pascale Pinot[10], Ieuan Jones[11] and Hanns-Christian Tillmann[10]

Beier J. ERJ Open Res 2021; 7: 00425-02020.



Beier J. ERJ Open Res 2021; 7: 00425-02020.



Beier J. ERJ Open Res 2021; 7: 00425-02020.

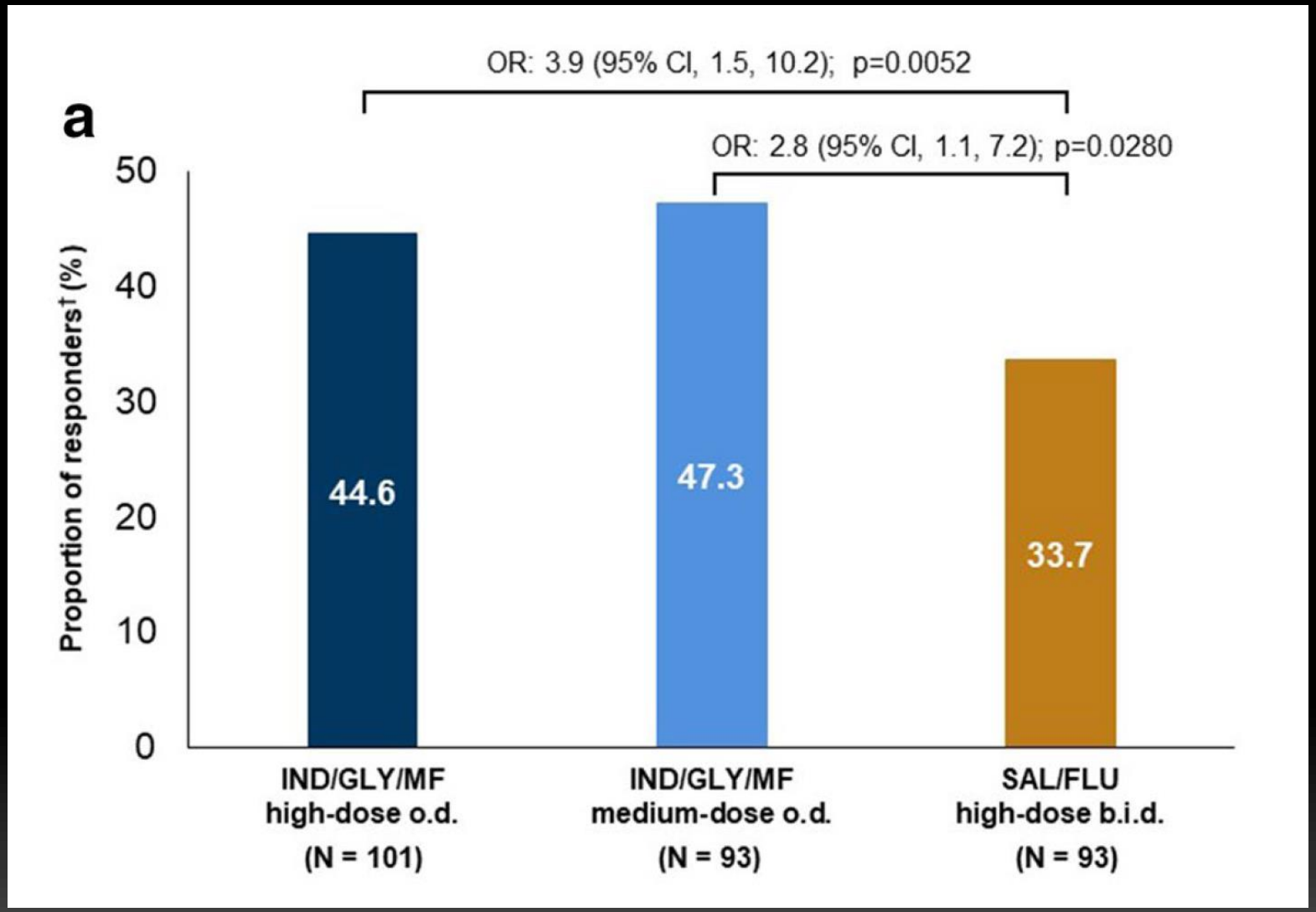
Clinical Drug Investigation (2021) 41:489–492
https://doi.org/10.1007/s40261-021-01033-6

RESEARCH LETTER

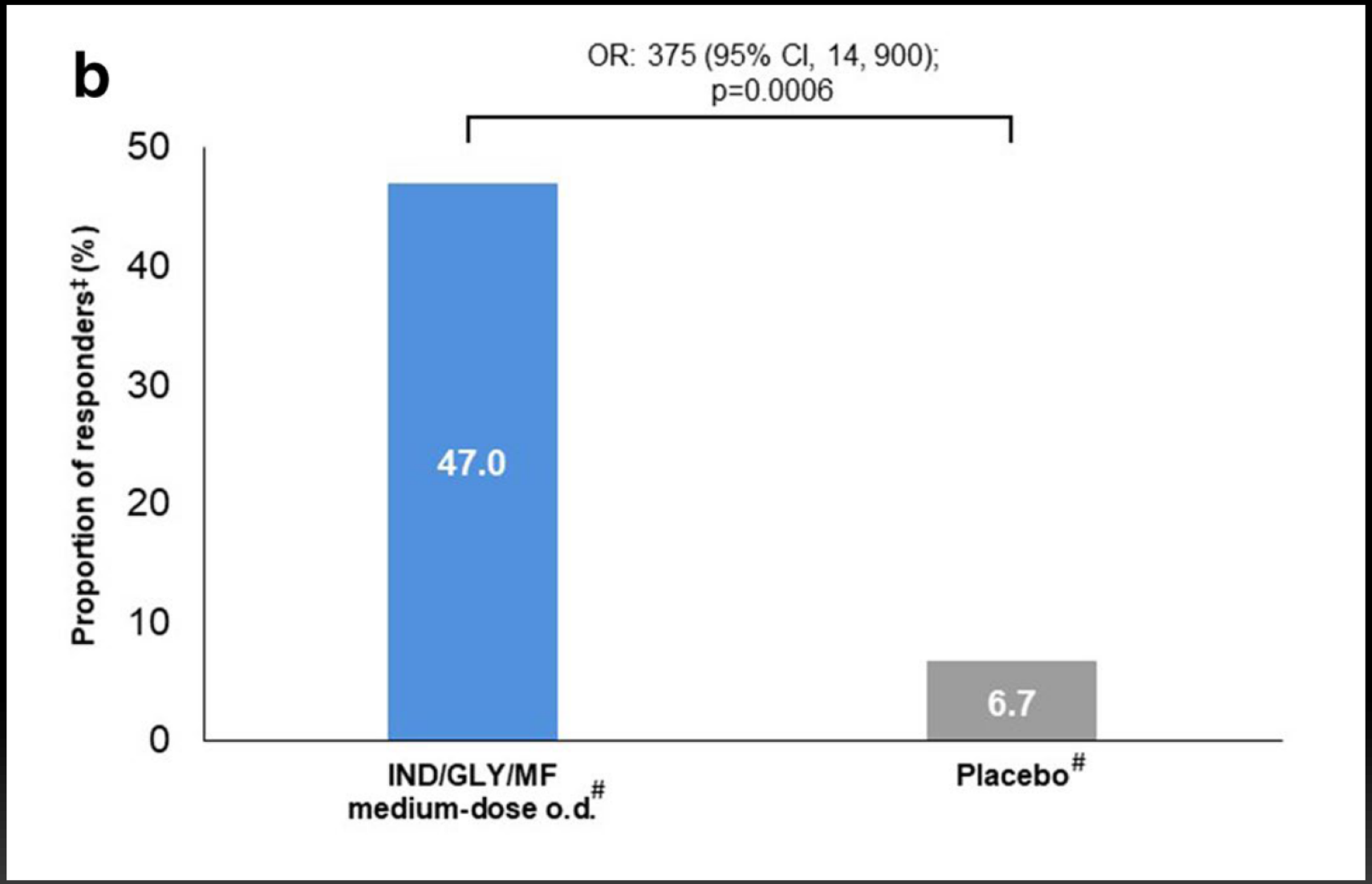
Lung Function Normalisation with Indacaterol Acetate/Glycopyrronium Bromide/Mometasone Furoate in Patients with Asthma

Kenneth R. Chapman[1,2] · Henrik Watz[3] · Dave Singh[4] · Jens M. Hohlfeld[5] · Zuzana Diamant[6,7,8] · Ieuan Jones[9] · Hanns-Christian Tillmann[10] · Ivan Nikolaev[9]

Chapman KR. Clin Drug Investig 2021; 41: 489-492.



Chapman KR. Clin Drug Investig 2021; 41: 489-492.



Chapman KR. Clin Drug Investig 2021; 41: 489-492.

European Journal of Internal Medicine 85 (2021) 14–22

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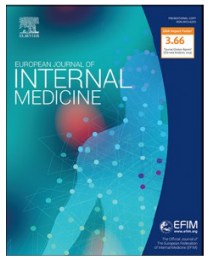
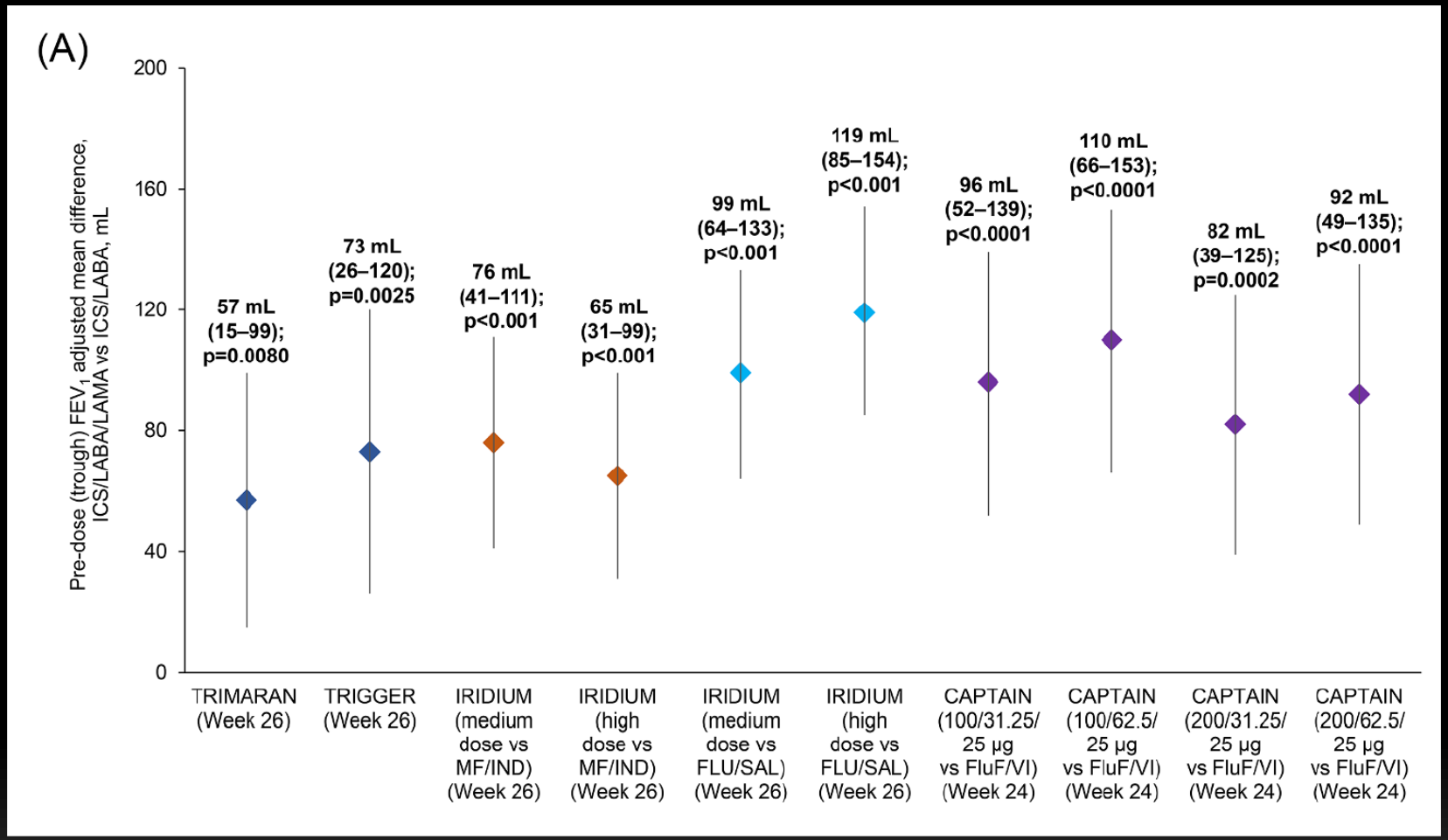


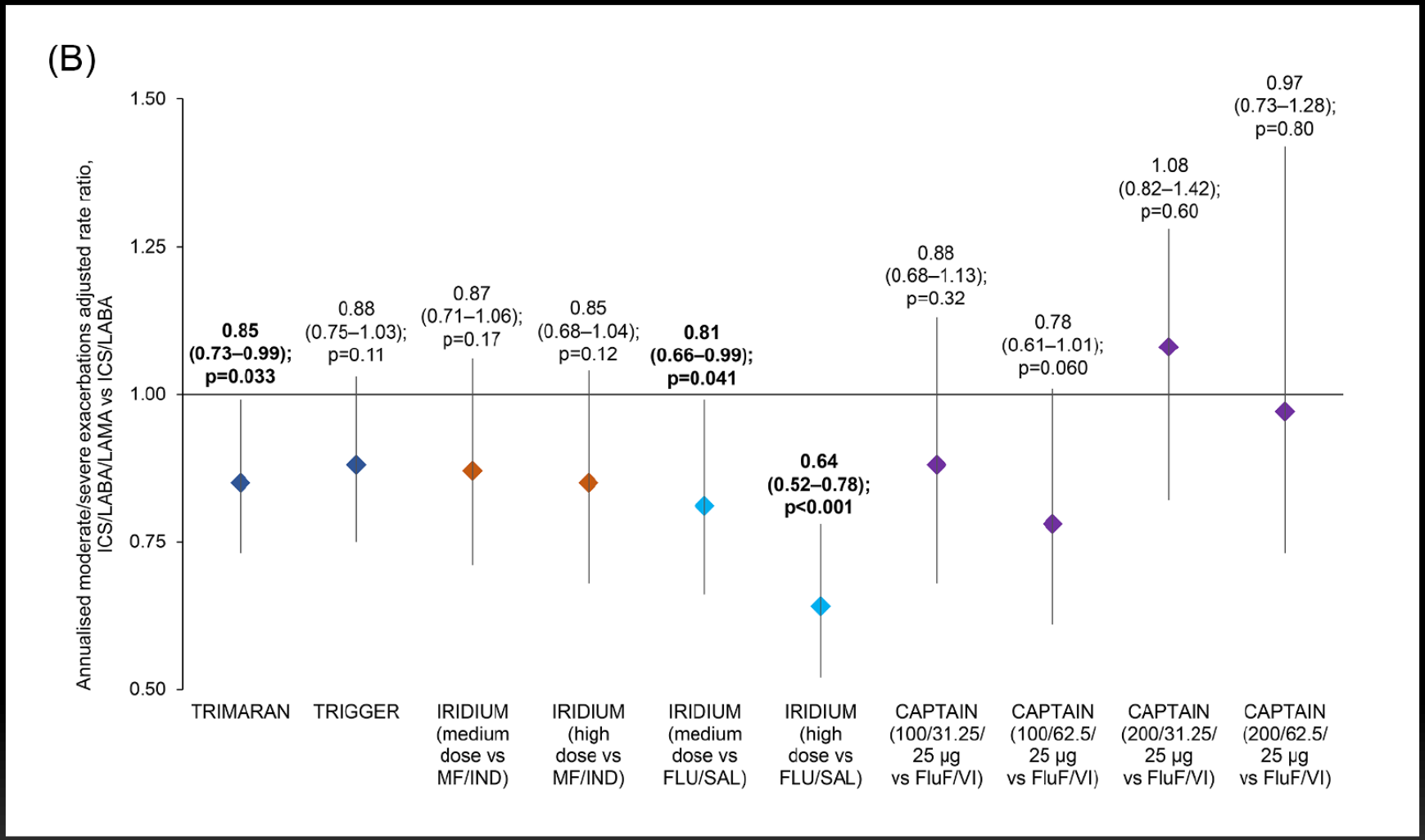
Inhaled long-acting muscarinic antagonists in asthma – A narrative review

Alberto Papi [a,*], Leonardo M Fabbri [b], Huib A.M. Kerstjens [c], Paola Rogliani [d], Henrik Watz [e], Dave Singh [f]

Papi A. Eur J Intern Med 2021; 85: 14-22.



Papi A. Eur J Intern Med 2021; 85: 14-22.



Papi A. Eur J Intern Med 2021; 85: 14-22.

Research

JAMA | Original Investigation

Triple vs Dual Inhaler Therapy and Asthma Outcomes in Moderate to Severe Asthma

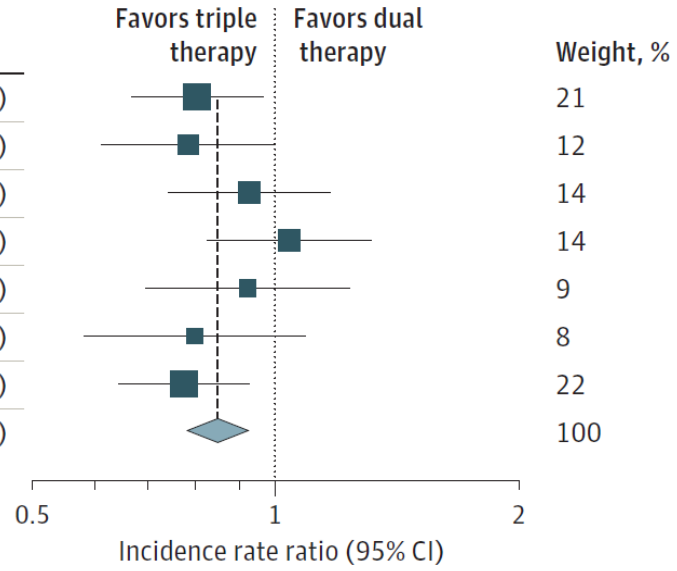
A Systematic Review and Meta-analysis

Lisa H. Y. Kim, MD; Carol Saleh, MD; Anna Whalen-Browne, MD; Paul M. O'Byrne, MB; Derek K. Chu, MD, PhD

Kim LHY. JAMA 2021; 325: 2466-2479.

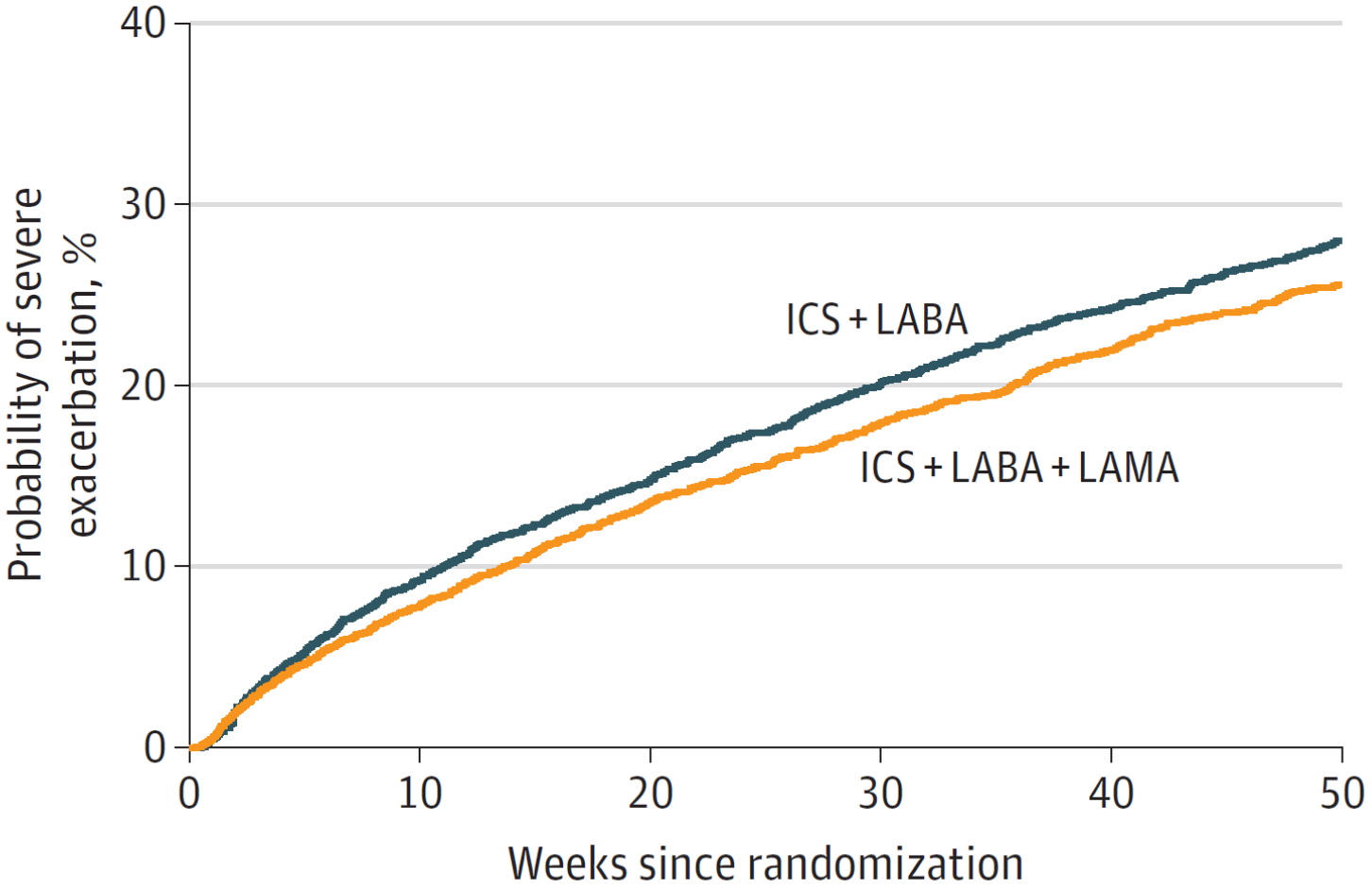
A Incidence rate ratio of exacerbations

Source	Mean annualized exacerbation rate[a] Triple	Dual	Incidence rate ratio (95% CI)	Weight, %
Kerstjens et al,[46] 2012	0.53	0.66	0.80 (0.66-0.96)	21
Kerstjens et al,[55] 2020[b]	0.26	0.33	0.78 (0.61-1.00)	12
Kerstjens et al,[55] 2020[b]	0.38	0.41	0.93 (0.74-1.17)	14
Lee et al,[56] 2020[b]	0.38	0.41	1.04 (0.82-1.31)	14
Lee et al,[56] 2020[b]	0.39	0.38	0.92 (0.69-1.23)	9
Pearl Therapeutics,[57] 2017	0.44	0.55	0.79 (0.58-1.09)	8
Virchow et al,[45] 2019	0.27	0.35	0.77 (0.64-0.93)	22
Overall: $I^2 = 0\%$			0.85 (0.78-0.92)	100



Kim LHY. JAMA 2021; 325: 2466-2479.

Figure 3. Kaplan-Meier Failure Curves of Time to First Severe Exacerbation in Patients Assigned to Triple vs Dual Asthma Inhaler Therapy



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A Asthma control

Source	Scale[a]	Triple therapy No.	Triple therapy Mean (SD)	Dual therapy No.	Dual therapy Mean (SD)	Standardized mean difference (95% CI)	Weight, %
Hamelmann et al,[50] 2017	ACQ-7	256	-0.87 (0.82)	132	-0.97 (0.57)	0.13 (-0.08 to 0.34)	3.6
Ishiura et al,[52] 2019	ACT	17	0.40 (6.20)	17	0.40 (6.20)	0.00 (-0.67 to 0.67)	0.3
Ishiura et al,[53] 2020	ACQ-5	19	-0.40 (4.60)	19	-1.00 (4.60)	0.13 (-0.51 to 0.77)	0.4
Jabbal et al,[47] 2017	ACQ-7	14	-0.22 (0.44)	14	-0.28 (0.41)	0.14 (-0.60 to 0.88)	0.3
Kerstjens et al,[46] 2012[b]	ACQ-7	237	-0.71 (0.75)	222	-0.59 (0.75)	-0.16 (-0.34 to 0.02)	4.8
Kerstjens et al,[46] 2012[b]	ACQ-7	216	-0.57 (0.73)	232	-0.44 (0.74)	-0.18 (-0.36 to 0.01)	4.7
Kerstjens et al,[55] 2020[b]	ACQ-7	552	-1.09 (0.70)	1094	-1.05 (0.45)	-0.07 (-0.18 to 0.03)	15.3
Kerstjens et al,[55] 2020[b]	ACQ-7	537	-0.96 (0.67)	536	-0.96 (0.66)	-0.02 (-0.13 to 0.10)	11.2
Lee et al,[56] 2020[b]	ACQ-7	790	-0.77 (0.66)	374	-0.72 (0.66)	-0.08 (-0.20 to 0.05)	10.6
Lee et al,[56] 2020[b]	ACQ-7	784	-0.73 (0.67)	371	-0.64 (0.66)	-0.14 (-0.27 to -0.02)	10.5
Pearl Therapeutics,[57] 2017	ACQ-7	665	-0.86 (2.90)	187	-0.80 (0.77)	-0.02 (-0.18 to 0.14)	6.1
Singh et al,[59] 2014	ACQ-6	152	-0.19 (1.45)	49	-0.19 (0.55)	-0.00 (-0.32 to 0.32)	1.6
Szefler et al,[49] 2017	ACQ-7	262	-0.95 (0.73)	130	-0.97 (0.54)	0.04 (-0.17 to 0.25)	3.6
Virchow et al,[45] 2019[b]	ACQ-7	858	-0.82 (1.26)	571	-0.71 (0.73)	-0.10 (-0.20 to 0.01)	14.3
Virchow et al,[45] 2019[b]	ACQ-7	575	-0.74 (0.69)	574	-0.72 (0.70)	-0.03 (-0.15 to 0.08)	12.0
Wang et al,[60] 2015	ACT	30	-5.77 (7.87)	33	-6.38 (5.34)	0.09 (-0.40 to 0.59)	0.7
Overall: $I^2 = 0\%$		5964		4555		-0.06 (-0.10 to -0.02)	100

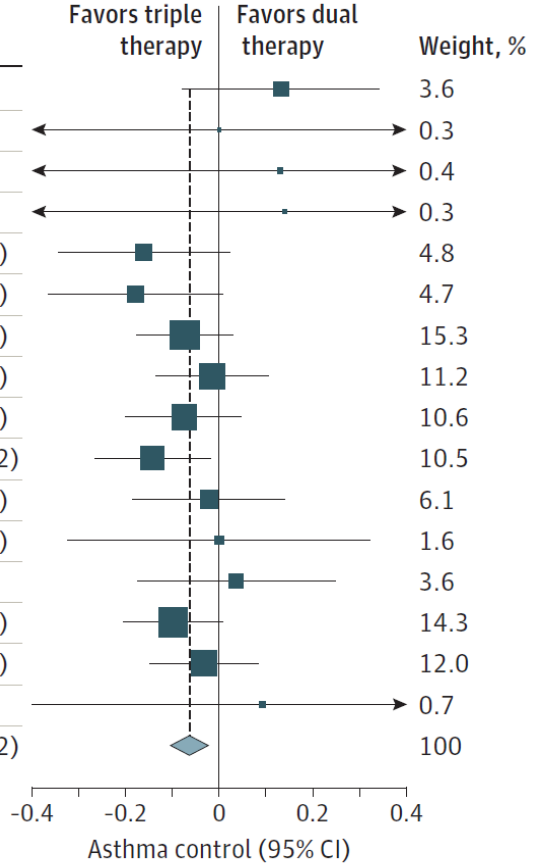

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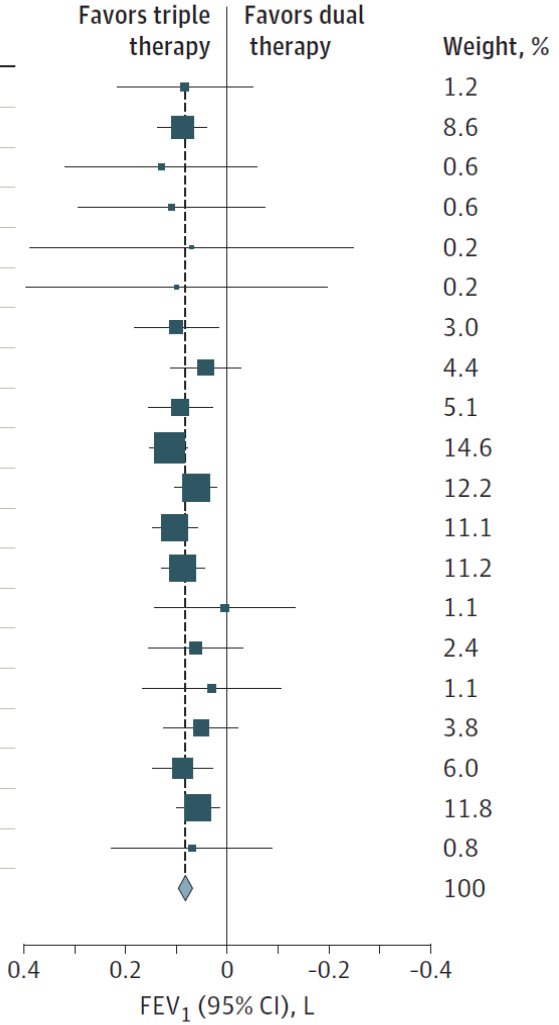
Figure 5. Lung Function as Measured by FEV_1 in Randomized Trials of Triple vs Dual Therapy

Source	Triple therapy No.	Triple therapy FEV_1, mean (SD), L	Dual therapy No.	Dual therapy FEV_1, mean (SD), L	FEV_1, mean difference (95% CI), L	Weight, %
Hamelmann et al,[50] 2017	256	0.31 (0.78)	132	0.23 (0.55)	0.08 (-0.05 to 0.22)	1.2
Hoshino et al,[51] 2018	29	0.11 (0.08)	30	0.02 (0.11)	0.09 (0.04 to 0.14)	8.6
Ishiura et al,[52] 2019	17	0.20 (0.28)	17	0.07 (0.29)	0.13 (-0.06 to 0.32)	0.6
Ishiura et al,[53] 2020	19	0.10 (0.29)	19	-0.01 (0.29)	0.11 (-0.07 to 0.29)	0.6
Jabbal et al,[47] 2017	14	0.15 (0.43)	14	0.08 (0.43)	0.07 (-0.25 to 0.39)	0.2
Jabbal et al,[54] 2020	16	0.21 (0.43)	16	0.11 (0.42)	0.10 (-0.20 to 0.40)	0.2
Kerstjens et al,[48] 2011	67	0.15 (0.25)	33	0.05 (0.17)	0.10 (0.02 to 0.18)	3.0
Kerstjens et al,[46] 2012[a]	237	0.13 (0.39)	222	0.09 (0.37)	0.04 (-0.03 to 0.11)	4.4
Kerstjens et al,[46] 2012[a]	216	0.16 (0.34)	232	0.06 (0.35)	0.09 (0.03 to 0.16)	5.1
Kerstjens et al,[55] 2020[a]	614	0.45 (0.37)	1213	0.34 (0.42)	0.11 (0.08 to 0.15)	14.6
Kerstjens et al,[55] 2020[a]	614	0.39 (0.35)	602	0.33 (0.38)	0.06 (0.02 to 0.10)	12.2
Lee et al,[56] 2020[a]	803	0.13 (0.44)	400	0.02 (0.31)	0.10 (0.06 to 0.15)	11.1
Lee et al,[56] 2020[a]	804	0.16 (0.44)	403	0.08 (0.31)	0.09 (0.04 to 0.13)	11.2
Pearl Therapeutics,[57] 2017	702	0.13 (1.77)	193	0.13 (0.32)	0.01 (-0.13 to 0.14)	1.1
Ohta et al,[58] 2015	228	0.14 (0.41)	57	0.08 (0.29)	0.06 (-0.03 to 0.15)	2.4
Singh et al,[59] 2014	152	0.14 (0.70)	49	0.11 (0.28)	0.03 (-0.11 to 0.17)	1.1
Szefler et al,[49] 2017	263	0.19 (0.43)	130	0.14 (0.31)	0.05 (-0.02 to 0.13)	3.8
Virchow et al,[45] 2019[a]	826	0.24 (0.71)	547	0.16 (0.41)	0.09 (0.03 to 0.15)	6.0
Virchow et al,[45] 2019[a]	557	0.18 (0.36)	553	0.13 (0.36)	0.06 (0.02 to 0.10)	11.8
Zhang et al,[62] 2018	40	0.75 (0.44)	40	0.68 (0.26)	0.07 (-0.09 to 0.23)	0.8
Overall: $I^2 = 0\%$	6474		4902		0.08 (0.07 to 0.10)	100



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Archivos de Bronconeumología 2 (2022) T150–T158

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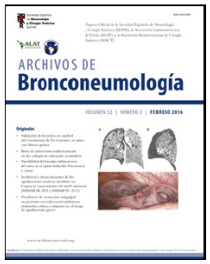
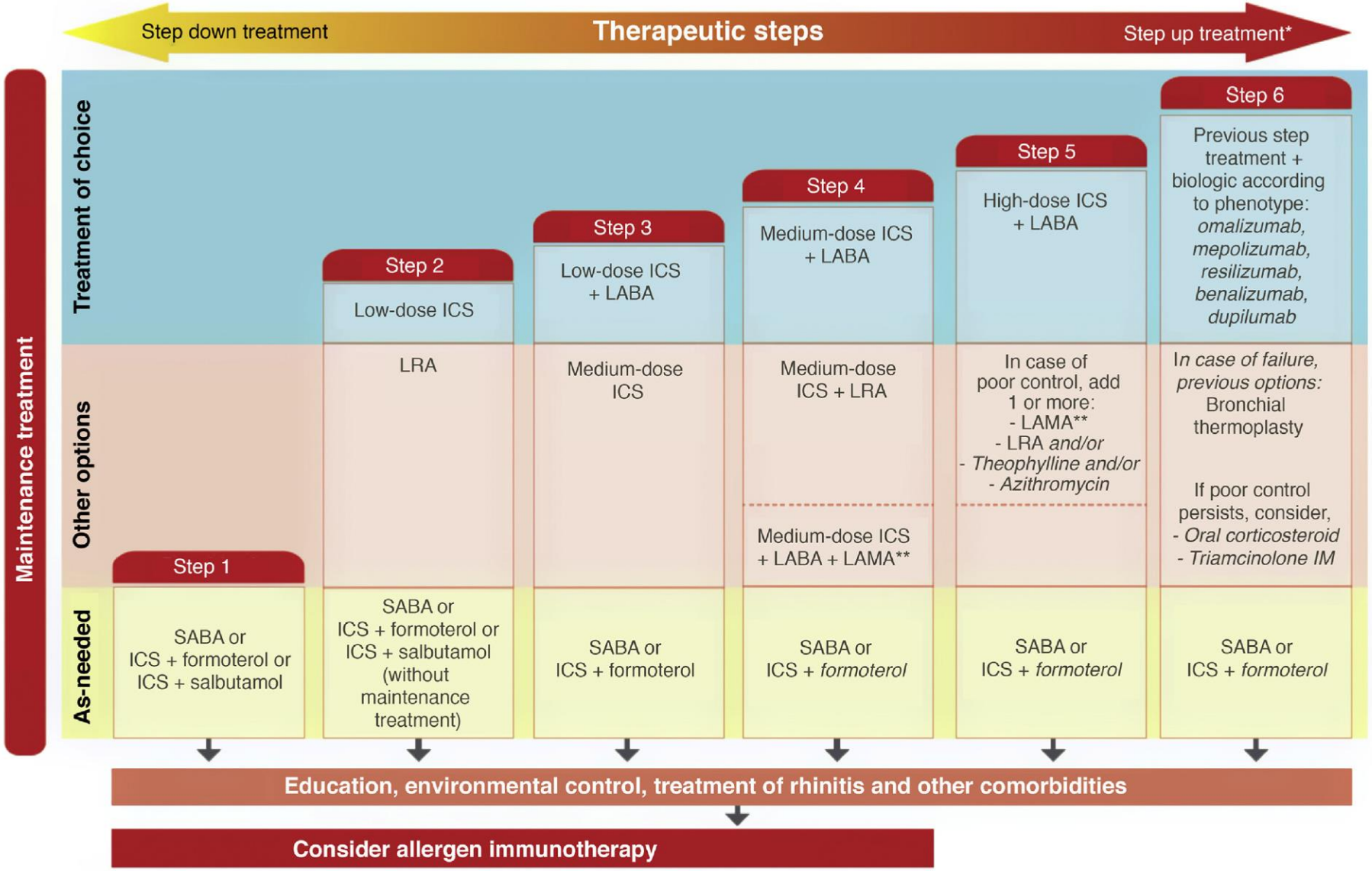


SEPAR's Voice

[Translated article] Spanish Asthma Management Guidelines (GEMA) v.5.1. Highlights and Controversies

Vicente Plaza[a,*], Isam Alobid[b], Cesáreo Alvarez[c], Marina Blanco[d], Jorge Ferreira[e], Gabriel García[f], Antonio Gómez-Outes[g], Fernando Gómez[h], Antonio Hidalgo[i], Javier Korta[j], Jesús Molina[k], Francisco Javier Pellegrini[l], Montserrat Pérez[m], Javier Plaza[n], Manuel Praena[o], Santiago Quirce[p], José Sanz[q]

Plaza V. Arch Bronconeumol 2022; 58: T150-T158.



Plaza V. Arch Bronconeumol 2022; 58: T150-T158.

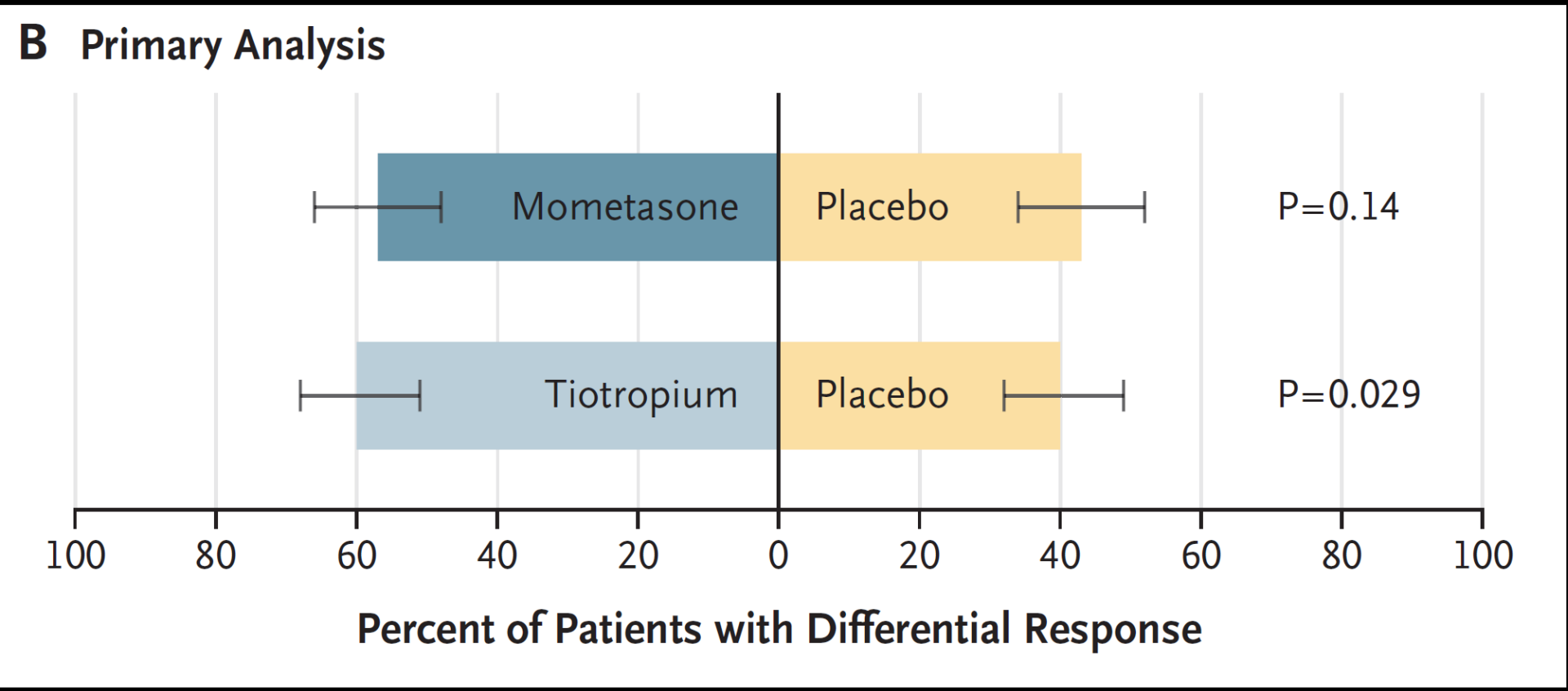
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Mometasone or Tiotropium in Mild Asthma with a Low Sputum Eosinophil Level

S.C. Lazarus, J.A. Krishnan, T.S. King, J.E. Lang, K.V. Blake, R. Covar, N. Lugogo, S. Wenzel, V.M. Chinchilli, D.T. Mauger, A.-M. Dyer, H.A. Boushey, J.V. Fahy, P.G. Woodruff, L.B. Bacharier, M.D. Cabana, J.C. Cardet, M. Castro, J. Chmiel, L. Denlinger, E. DiMango, A.M. Fitzpatrick, D. Gentile, A. Hastie, F. Holguin, E. Israel, D. Jackson, M. Kraft, C. LaForce, R.F. Lemanske, Jr., F.D. Martinez, W. Moore, W.J. Morgan, J.N. Moy, R. Myers, S.P. Peters, W. Phipatanakul, J.A. Pongracic, L. Que, K. Ross, L. Smith, S.J. Szefler, M.E. Wechsler, and C.A. Sorkness, for the National Heart, Lung, and Blood Institute AsthmaNet*

Lazarus SC. N Engl J Med 2019; 380: 2009-2019.



Lazarus SC. N Engl J Med 2019; 380: 2009-2019.

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DOI: 10.1111/resp.14055

ORIGINAL ARTICLE

Official Journal of the Asian Pacific Society of Respirology
Respirology
APSR
WILEY

A low exhaled nitric oxide level excludes a short-term benefit from inhaled corticosteroids in suspected asthma: A randomized placebo-controlled trial

Lissa Sutherland[1] | Karen Shaw[2] | Clair Parrish[2] | Nicola Singleton[2] | Tricia M. McKeever[2] | Iain Stewart[2] | Dominick Shaw[2] | Matthew J. Martin[2] | Tim Harrison[2]

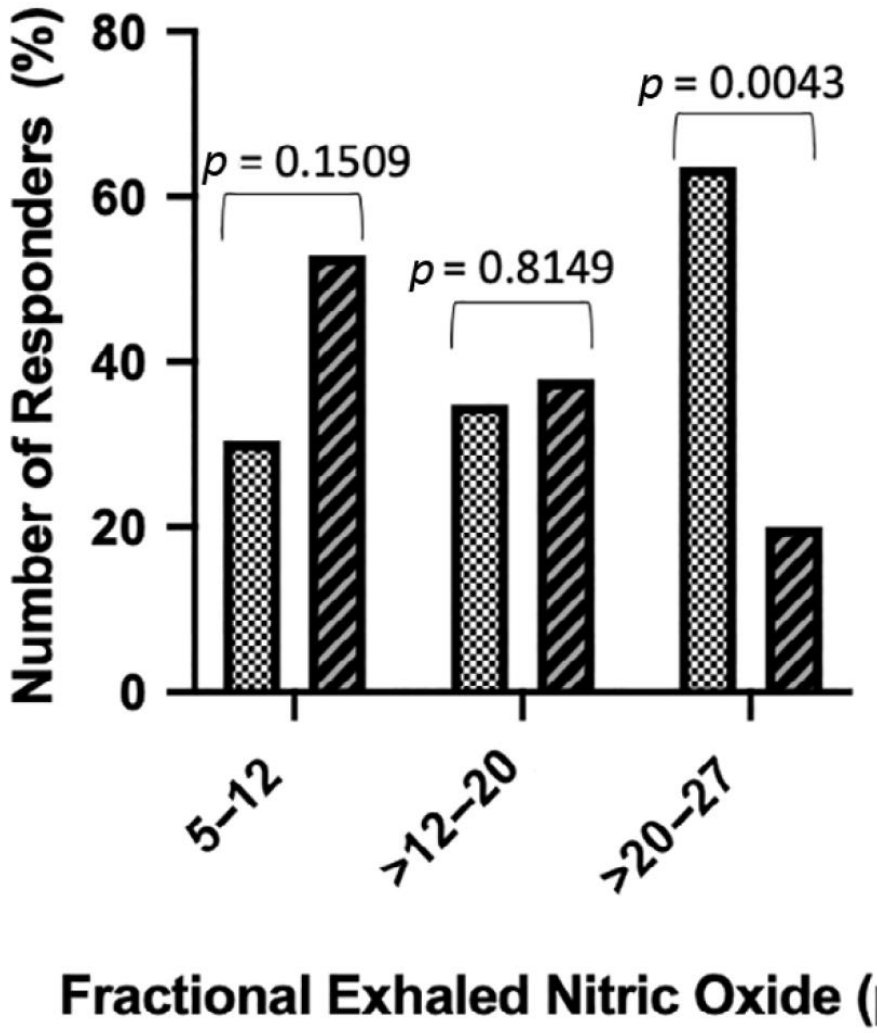


FIGURE 3 Response to intervention according to baseline fractional exhaled nitric oxide tertiles. Budesonide ▩, Placebo ▨

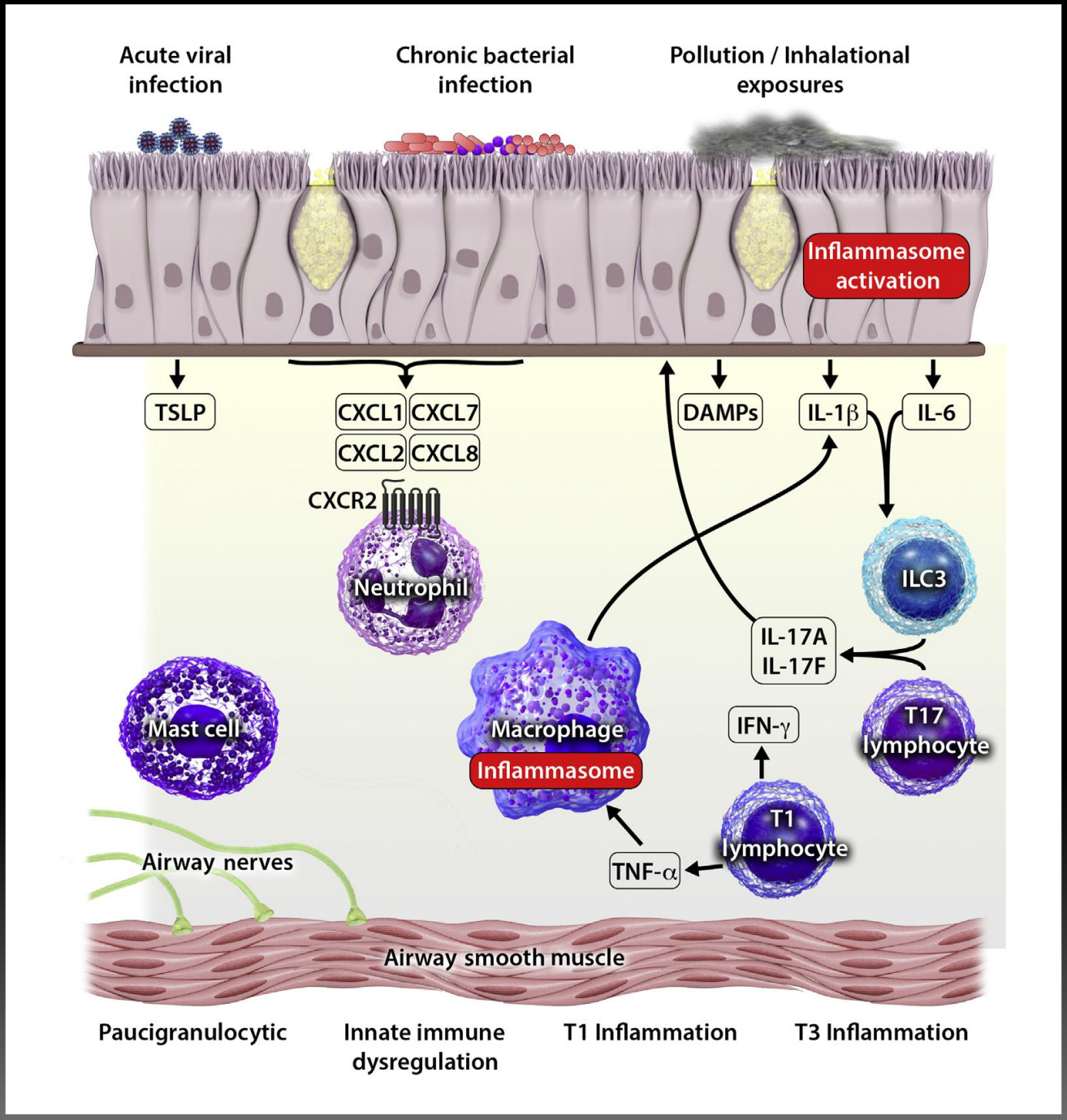
Sutherland L. Respirology 2021; 26: 666-672.

Clinical Commentary Review

Management Strategies to Reduce Exacerbations in non-T2 Asthma

Ryan C. Murphy, MD[a,b], Ian D. Pavord, DM FMedSci[c], Rafeul Alam, MD, PhD[d], and Matthew C. Altman, MD[b,e] *Seattle, Wash; Oxford, United Kingdom; and Denver, Colo*

Murphy RC. J Allergy Clin Immunol Pract 2021; 9: 2588-2597.



Murphy RC. J Allergy Clin Immunol Pract 2021; 9: 2588-2597.

Pharmacologic interventions	
Current therapies to consider	
Chronic macrolide therapy	ERS/ATS and GINA recommend use for select patients with severe asthma. Avoid use in patients with dysrhythmias and use with caution in patients with hearing loss. Risk of inducing antimicrobial resistance
Long-acting muscarinic antagonist	ERS/ATS, GINA, and NAEPP recommend use for select patients with asthma not controlled with ICS-LABA

Murphy RC. J Allergy Clin Immunol Pract 2021; 9: 2588-2597.