Abstract Presentations

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Efficacy of tiotropium/olodaterol compared with tiotropium in patients naïve to LAMA, LABA and ICS, and patients receiving only LAMA at baseline: pooled analyses of four clinical trials

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27 June 2020

Disclosure: AdlH is an employee of Boehringer Ingelheim

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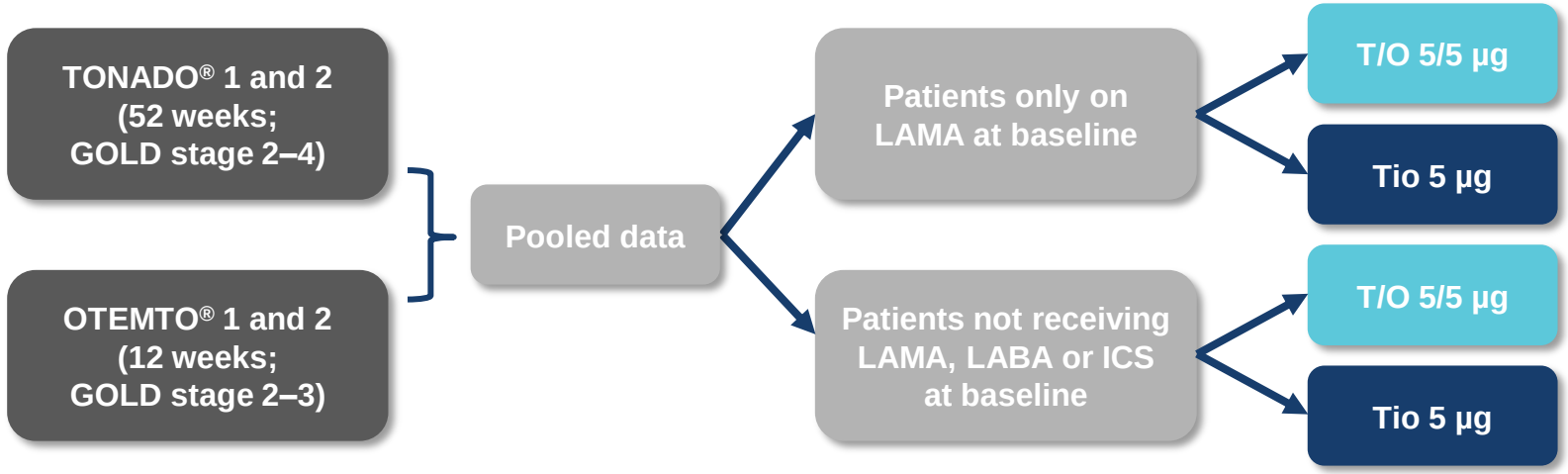
Breathing and feeling well through universal access to right care

Introduction, Aim and Methods

- GOLD recommends LAMAs as the first-line maintenance treatment for most COPD patients; however, many patients remain symptomatic on monotherapy, so a step-up to dual bronchodilator therapy is recommended[1–3]
- TONADO® and OTEMTO® were large Phase III clinical trials that evaluated the efficacy of LAMA/LABA combination (T/O) compared with LAMA monotherapy (tio) delivered via Respimat® in patients with moderate-to-very severe COPD[4,5]

Aim: To compare the efficacy of T/O with tio in two COPD patient subsets:
- Patients not receiving maintenance treatment with LAMA, LABA or ICS (maintenance-naïve)
- Patients receiving only LAMA at baseline



At Week 12, the following were examined:
- Trough FEV_1
- SGRQ total score
- TDI score

COPD, chronic obstructive pulmonary disease; FEV_1, forced expiratory volume in 1 second; GOLD, Global Initiative for Chronic Obstructive Lung Disease; ICS, inhaled corticosteroid; LABA, long-acting β_2-agonist; LAMA, long-acting muscarinic antagonist; SGRQ, St. George's Respiratory Questionnaire; T/O, tiotropium/olodaterol; TDI, Transition Dyspnoea Index; tio, tiotropium.

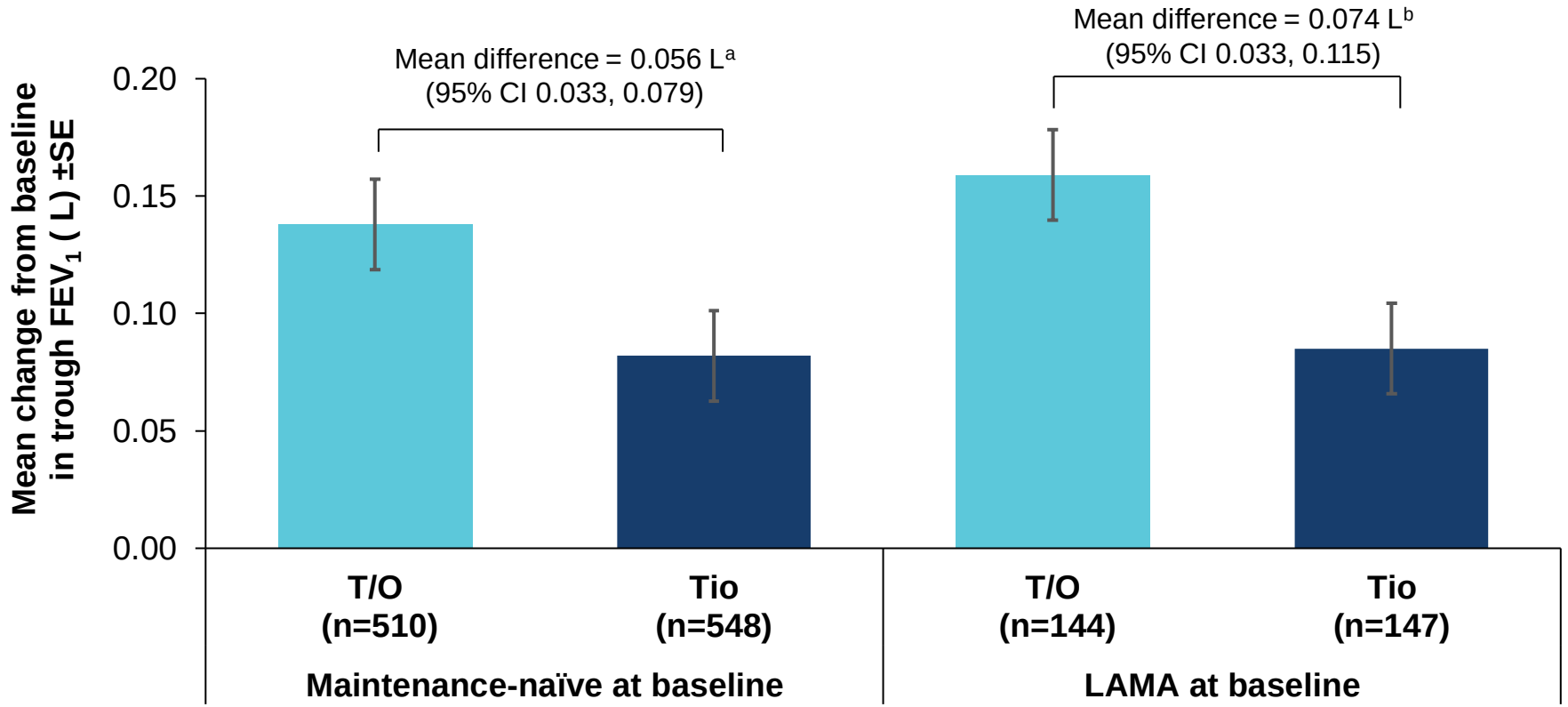
1. Global Initiative for Chronic Obstructive Lung Disease. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (2020 report). 2019. Available here: https://goldcopd.org/wp-content/uploads/2019/11/GOLD-2020-REPORT-ver1.0wms.pdf; 2. Malerba M, et al. Front Pharmacol 2019; 10:390; 3. Miravitlles M, et al. Eur Respir J 2017; 49:1602200; 4. Buhl R, et al. Eur Respir J 2015; 45:969–979; 5. Singh D, et al. Resp Med 2015; 109:1312–1319.

Baseline characteristics

Characteristic	Treatment-naïve at baseline		LAMA at baseline	
	Tio 5 µg (n=560)	T/O 5/5 µg (n=518)	Tio 5 µg (n=151)	T/o 5/5 µg (n=148)
Male, n (%)	394 (70.4)	347 (67.0)	109 (72.2)	99 (66.9)
Age, years	62.8±8.6	62.9±8.5	65.2±8.0	65.9±8.7
Smoking status				
Ex-smoker, n (%)	304 (54.3)	264 (51.0)	97 (64.2)	77 (52.0)
Current smoker, n (%)	256 (45.7)	254 (49.0)	54 (35.8)	71 (48.0)
Post-bronchodilator spirometry				
FEV_1, L	1.489±0.534	1.464±0.526	1.491±0.523	1.440±0.483
FEV_1 % predicted, %	52.754±15.118	52.603±14.939	54.291±14.584	54.456±13.798
FVC, L	3.051±0.827	3.010±0.872	3.176±0.855	3.069±0.846
FEV_1/FVC, %	49.102±12.212	49.042±11.602	47.179±11.518	47.309±10.656
GOLD stage, n (%)				
1: FEV_1 ≥80%	2 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)
2: FEV_1 50–<80%	329 (58.8)	301 (58.1)	94 (62.3)	96 (64.9)
3: FEV_1 30–<50%	187 (33.4)	177 (34.2)	44 (29.1)	44 (29.7)
4: FEV_1 <30%	42 (7.5)	40 (7.7)	13 (8.6)	8 (5.4)
SGRQ score	43.4±18.4	43.1±17.4	39.9±15.9	37.5±16.6
BDI score	6.5±2.2	6.5±2.2	7.0±2.1	7.2±1.9

Data are mean±SD unless stated otherwise.
BDI, Baseline Dyspnoea Index; FVC, forced vital capacity; SD, standard deviation.

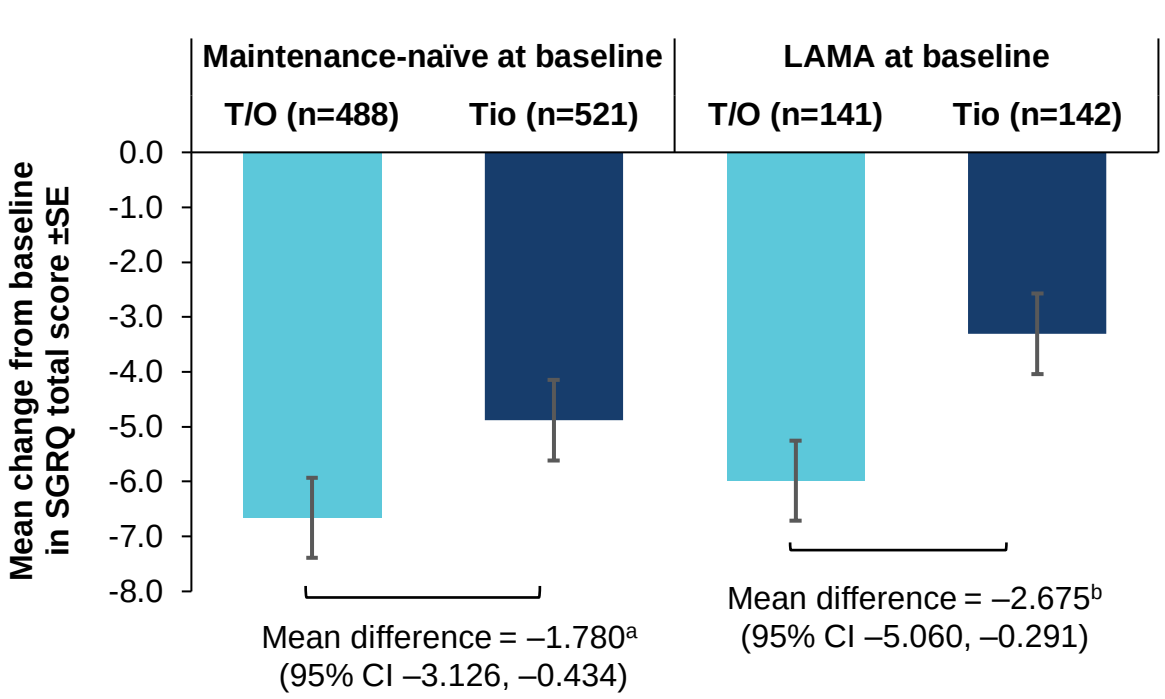
Treatment differences in trough FEV_1

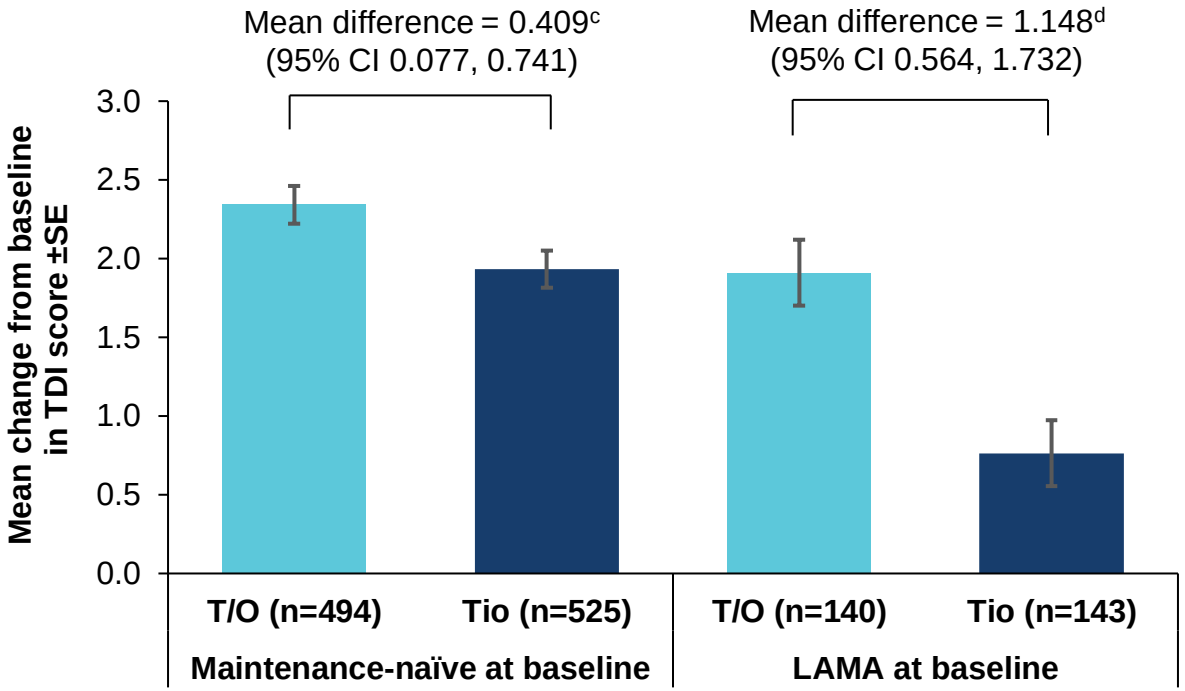


At Week 12, T/O compared with tio was associated with a significant increase from baseline in trough FEV_1

[a]P<0.0001; [b]P=0.0004.
CI, confidence interval; SE, standard error.

Treatment differences in SGRQ and TDI total score



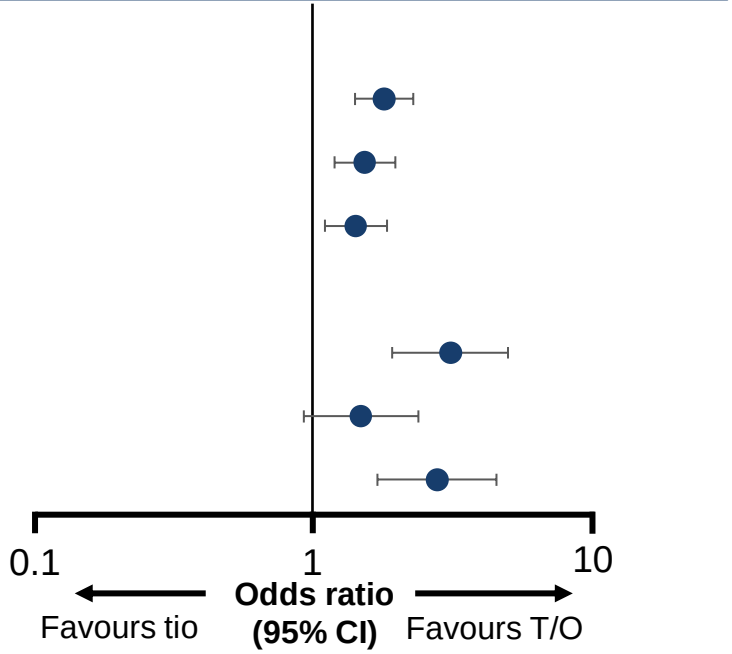


At Week 12, T/O compared with tio was associated with a significant improvement from baseline in SGRQ and TDI total score

[a]P=0.0096; [b]P=0.0280; [c]P=0.0158; [d]P=0.0001.

Responder analysis of SGRQ and TDI at Week 12

	% responder, T/O / tio	Odds ratio (95% CI)	P value
Maintenance-naïve at baseline			
Trough FEV_1	55.8 / 41.1	1.81 (1.42, 2.30)	<0.0001
SGRQ total score	59.6 / 48.8	1.54 (1.20, 1.99)	0.0007
TDI score	63.3 / 55.0	1.43 (1.11, 1.85)	0.0057
LAMA at baseline			
Trough FEV_1	68.5 / 40.9	3.14 (1.94, 5.06)	<0.0001
SGRQ total score	57.4 / 47.9	1.49 (0.93, 2.40)	0.0980
TDI score	57.1 / 31.5	2.81 (1.71, 4.60)	<0.0001



- **T/O compared with tio resulted in a greater likelihood of being a trough FEV_1 responder, TDI responder and SGRQ responder in maintenance-naïve patients**
- **For patients with LAMA at baseline, a greater likelihood of being a trough FEV_1 responder, TDI responder and a trend towards a greater likelihood of being an SGRQ responder was observed with T/O compared with tio**

FEV_1 responder is defined as >100 mL change in trough FEV_1 from baseline; SGRQ responder is defined as ≥4-unit improvement of SGRQ total score from baseline; TDI responder is defined as ≥1-unit improvement in TDI score from baseline.

Conclusions

Initiation of maintenance treatment with T/O resulted in greater improvements in lung function, health status and breathlessness compared with tio in maintenance-naïve patients and patients receiving only LAMA at baseline

These results show that dual bronchodilation with T/O is a suitable choice for first-line maintenance treatment in maintenance-naïve patients with COPD

Patients treated with single bronchodilator therapy with LAMA would benefit from optimisation of treatment with dual bronchodilation with T/O