

Medication Adherence and COPD-Related Costs Among Patients with COPD Treated with Umeclidinium/Vilanterol (UMEC/VI) versus Tiotropium (TIO)

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Aims

- Low levels of medication adherence to maintenance therapy among patients with chronic obstructive pulmonary disease (COPD) is a prevalent issue that is important for patient management.¹⁻²
- Studies have shown that patients treated with UMEC/VI have improved medication adherence over those treated with budesonide/formoterol³ and fluticasone propionate/salmeterol⁴; however, studies had not been conducted among patients treated with TIO.
- To add to this understanding, this study examined COPD-related medication adherence and costs among patients with COPD initiating maintenance therapy with UMEC/VI versus TIO.

Methods

Retrospective Cohort Study

Using Optum's de-identified Clinformatics Data Mart Database to identify patients initiated on UMEC/VI or TIO between January 1, 2014 and December 31, 2017, with the earliest prescription fill defined as the index date.

Included: Patients aged ≥40 years at index, ≥ 12 months continuous enrollment pre- and post-index, ≥1 diagnosis of COPD in the 12-month pre-index period or on the index.

Excluded: ≥1 pharmacy claim for ICS-, LABA-, or LAMA-containing controller pre-index and on the index date; ≥1 pharmacy claim for UMEC/VI and TIO on the index date; ≥1 diagnosis of asthma; moderate/severe COPD-related exacerbation on the index date

Propensity Score Matching
UMEC/VI patients were matched 1:1 with TIO patients

Outcomes

Adherence
Defined as proportion of days covered (PDC) and proportion of adherent patients (PDC ≥ 0.80) at 12 months post-index

COPD-Related Medical Costs
COPD-related costs, included hospitalization costs, ER visit costs, OP visit costs, and other visit costs, evaluated per patient per month during on-treatment period

Note: The primary objective for this study was time-to-first COPD exacerbation, which is not the focus of this presentation.

- All costs were inflation-adjusted to 2019 US dollars and cost differences were reported during the on-treatment period. Confidence intervals (CIs) and p-values were calculated using bootstrap procedures.
- Mean PDC and proportion of adherent patients were compared between cohorts using generalized estimating equations and conditional logistic regression models.

Disclosures

- DS, RR, CM, QS, BH are GSK employees and hold stocks/shares in GSK. CM is a former employee of GSK. GG, FL, MS, and SM are current employees of Analysis Group, a consulting company that has received research funds from GSK.
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Results

Table 1. Matched Cohorts' Demographic Data at Baseline

	UMEC/VI N = 3,929	TIO N = 3,929	Std. Diff. (%)*
Age Mean (SD)	70.9 (9.7)	70.8 (9.5)	0.4
Female %	46.9	47.0	0.2
Commercial Insurance %	19.0	19.0	0.0
Medicare Insurance %	81.0	81.0	0.0
Quan-Charlson Comorbidity Index Mean (SD)	3.1 (2.3)	3.0 (2.3)	1.8
COPD-Related Exacerbations Mean (SD)	0.5 (0.8)	0.4 (0.8)	1.4
COPD-Related Outpatient Visits Mean (SD)	2.9 (5.6)	2.7 (6.9)	2.8
COPD-Related Total Medical Costs Mean (SD)	\$9,042 (25,234)	\$8,642 (20,558)	1.7

*For continuous variables, the standard difference was calculated by dividing the absolute difference in means of the control and the case by the pooled standard deviation of both groups. The pooled standard deviation was the square root of the average of the squared standard deviations. For dichotomous variables, the standardized difference was calculated using the following equation where P is the respective proportion of participants in each group:
$$\frac{|P_{case} - P_{control}|}{\sqrt{(P_{case}(1-P_{case}) + P_{control}(1-P_{control}))/2}}$$

Figure 1. Matched Cohorts' Elixhauser Comorbidities at Baseline,⁵ N (%)

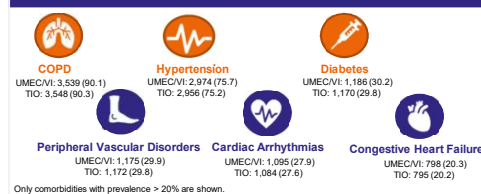


Figure 2. Adherence at 12 Months Post-Index

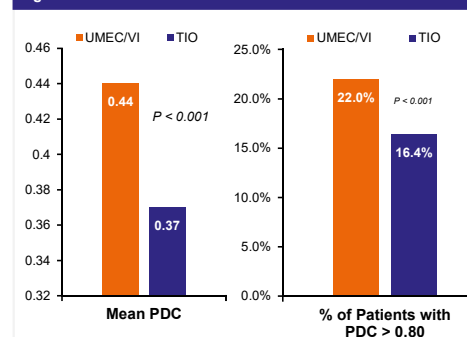
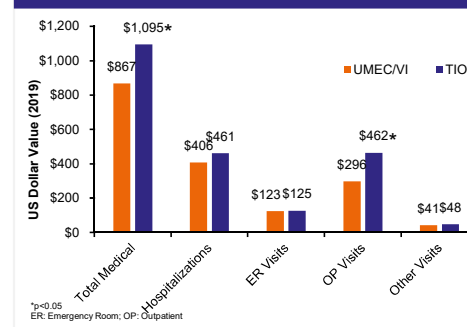


Figure 3. Mean On-Treatment COPD-Related Medical Costs Per Patient Per Month



Adherence

1.44 Times Higher Odds of Achieving Adherence (PDC ≥ 0.80) with UMEC/VI vs TIO

Odds ratio: 1.44 (95% CI 1.28, 1.61)
PDC, mean difference: 0.06 (95% CI 0.05, 0.08)

Costs

\$228 Lower Total COPD-Related Medical Costs Per Patient Per Month with UMEC/VI vs TIO

Cost difference: -\$228 (95% CI: -\$504, -\$15), P = 0.028

Conclusion

- Patients initiated on UMEC/VI had significantly better medication adherence and incurred significantly lower total COPD-related medical costs compared with patients initiated on TIO

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