

CHRONIC OBSTRUCTIVE PULMONARY DISEASE IS ASSOCIATED WITH AN INCREASED RISK OF HERPES ZOSTER: A RETROSPECTIVE ANALYSIS OF A UNITED STATES CLAIMS DATABASE FROM 2013-2018

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BACKGROUND

- Age-related decline in immunity is a risk factor for developing herpes zoster (HZ) and its most common complication, postherpetic neuralgia (PHN) that occurs in 10-13% of HZ cases in ≥50 year-olds.¹
- Chronic obstructive pulmonary disease (COPD) has been reported as a potential risk factor for developing HZ.²
- This study compares the incidence rates (IR) of HZ among adults ≥40 years of age (yoa) and of PHN among adults with HZ ≥50 yoa, with and without COPD in the US.

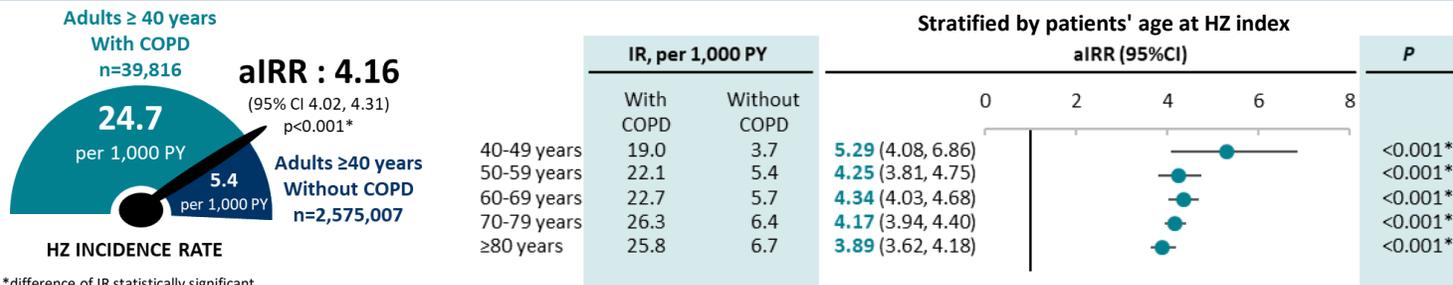
RESULTS

Baseline demographics & clinical characteristics

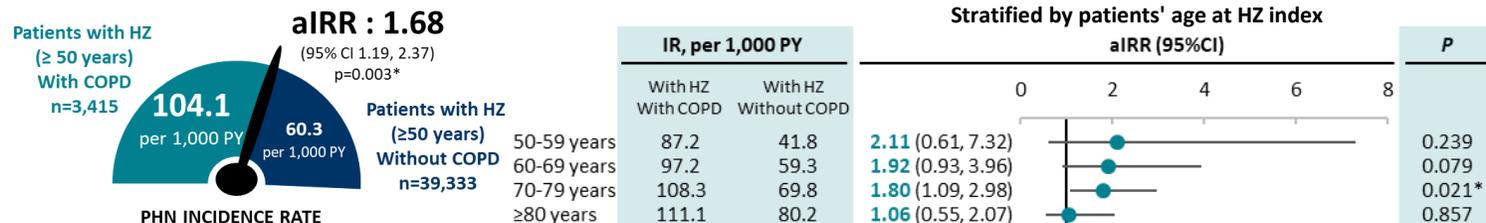
| DEMOGRAPHICS | With COPD N=39,816 | | | Without COPD N=2,575,007 | | | SD | CLINICAL CHARACTERISTICS | With COPD N=39,816 | | | Without COPD N=2,575,007 | | | SD |
|-------------------|-----------------------|--------------|-------|-----------------------------|--------------|-------|-------|--------------------------|---------------------------------|------------------------|------------------|-----------------------------|--------|--------|----|
| | With COPD | Without COPD | SD | With COPD | Without COPD | SD | | | With COPD | Without COPD | SD | | | | |
| Age at index date | 40-49 years | 2.6% | 23.9% | 62.8% | White | 16.7% | 20.2% | 9.1% | Charlson-Quan Comorbidity Index | Overall | 2.6 ⁵ | 0.2 ⁵ | 169.0% | | |
| | 50-59 years | 11.8% | 24.1% | 32.1% | Black | 9.9% | 8.3% | 5.6% | | Use of corticosteroids | Inhaled | 51.5% | 3.7% | 106.9% | |
| | 60-69 years | 24.3% | 22.4% | 4.6% | Hispanic | 6.3% | 9.3% | 11.0% | | | Oral | 30.5% | 13.6% | 40.6% | |
| | 70-79 years | 37.6% | 18.9% | 41.6% | Asian | 1.4% | 3.3% | 12.4% | Asthma | | 24.7% | 1.0% | 70.7% | | |
| | ≥80 years | 23.7% | 10.7% | 34.3% | Unknown | 65.7% | 58.9% | 13.9% | | | | | | | |
| Insurance type | Medicare | 84.6% | 45.5% | 81.9% | Gender | Male | 44.6% | 47.0% | 4.8% | | | | | | |
| | Advantage | | | | | | | | | | | | | | |
| | Commercial | 15.4% | 54.4% | 81.9% | | | | | | | | | | | |

SD: Standardized difference, baseline differences were examined using SD because the large sample size would result in a significant p-value with a very small difference (SD <20%, <50%, <80% were considered small, medium and large, respectively.) ⁵Overall mean (not percentage).

HZ incidence rate among patients with COPD was 4-times that among patients without COPD



PHN incidence rate among ≥50 year-olds with COPD was greater than that among patients without COPD; the significant association was mainly driven by the 70-79 year-olds.



CONCLUSION

- COPD presented as a statistically significant risk factor for developing acute HZ episodes among adults ≥40 years of age.
- Among adults ≥50 years of age with HZ, the presence of COPD also increased the risk of PHN, and this association was mainly driven by 70-79-year-olds.



Patients with COPD are at an increased risk of developing acute HZ and potential strategies to reduce this burden, such as HZ vaccination, may be beneficial.

METHODS

Study conducted using US administrative claims data from commercially insured and Medicare Advantage members from the Optum Clinformatics database.

The observation period lasted a minimum of 6 months from the index date (first HZ diagnosis or imputed index date for the cohorts without HZ) till the end of data availability.

Propensity score adjustment was performed to account for baseline differences in demographics and clinical characteristics between cohorts.

Poisson or negative binomial regression was used to estimate adjusted incidence rate ratios (aIRRs) of HZ or PHN between patients with and without COPD.

SUPPLEMENTARY MATERIALS - LIMITATIONS

- Results may not be generalizable to patients not covered by commercial insurance
- Data on patient characteristics such as smoking status and body mass index are not available in claims and this may have resulted in residual confounding given the complexities of the COPD population.

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Disclosures

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REFERENCES

1. Marra F, et al. Risk Factors for Herpes Zoster Infection: A Meta-Analysis. *Open Forum Infect Dis.* 2020;7(1):ofaa005.
2. Munoz-Quiles C, et al. Risk and impact of herpes zoster among COPD patients: a population-based study, 2009-2014. *BMC Infect Dis.* 2018;18(1):203.