Alpha-1 adrenergic antagonists and the risk of hospitalization or death in non-hospitalized patients with COVID-19
A population-based study

ODPRN
Quality. Relevance. Timeliness.

Background

Why is this important?

- Alpha-1 receptor antagonists are a safe and inexpensive class of drugs used by millions of patients worldwide for the treatment of hypertension and non-cancerous enlarged prostate.
- Evidence suggests that alpha-1 antagonists could be potentially repurposed for the treatment of COVID-19.

What did we investigate?

- The association between alpha-1 antagonist exposure and the 30-day risk of hospitalization (hospital admission or emergency department visit) or death in non-hospitalized patients with COVID-19.

Key Points

- There was no significant difference in the 30-day risk of hospitalization or death between patients exposed to alpha-1 antagonists and unexposed individuals.
- In secondary analyses, alpha-1 antagonist exposure was associated with a 21% reduced risk of death in individuals with diabetes, chronic kidney disease, and long-term care residents.

Study Details

How was the study conducted?

- *Design:* Population-based propensity score matched cohort study.
- *Population:* Ontario residents aged 35+ eligible for public drug coverage and who tested positive for COVID-19.
- *Study period:* Between January 1, 2020 and March 1, 2021.
- *Primary outcome:* The occurrence of hospital visits (admission or emergency room) or deaths within 1 to 30 days after testing positive for COVID-19.
- *Secondary outcome:* Investigating hospital visits and deaths as separate outcomes within the same 30-day timeframe following a COVID-19 diagnosis.

What did we find?

- 3,289 patients exposed to an alpha-1 antagonist were compared with 6,189 matched unexposed patients.
- 92.6% were male, and the median ages of individuals exposed and unexposed to alpha-1 antagonists were 77 years (IQR 69 - 85) and 76 years (IQR 69 - 85), respectively.
- Hospital encounters or death within 30 days following a COVID-19 diagnosis, occurred in 28.3% of individuals.
    - Most outcomes (n=1,908; 71.2%) were hospital encounters, with deaths representing 28.8% (n=773) of identified outcomes.
    - No significant difference in hospital encounters or death was found between patients exposed to alpha-1 antagonists and unexposed individuals (28.8% vs. 28.0%; OR 1.00, 95% CI 0.91 - 1.11), with consistent results across age and sex stratifications.
    - Factors such as diabetes, chronic kidney disease, congestive heart failure, and chronic lung disease did not modify the association between alpha-1 antagonist exposure and outcomes.
- In secondary analyses of hospital encounters and deaths as individual outcomes, alpha-1 antagonist exposure was associated with a 21% reduced risk of death in individuals with diabetes, chronic kidney disease, and long-term care residents.

Recommendations

- These findings do not support the use of alpha-1 antagonists as a general treatment for non-hospitalized patients with COVID-19; however, there may be benefits for specific high-risk groups. Further research is necessary to determine the role of these drugs in treating COVID-19 in long-term care residents, individuals with diabetes, or chronic kidney disease.

IC/ES Data Discovery Better Health

ST. MICHAEL'S UNITY HEALTH TORONTO