Video abstract transcript

Characteristics, Comorbidities, and Outcomes of SARS-CoV-2 Infection in Patients with Autoimmune Conditions Treated with Systemic Therapies: a Population-based Study

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Hello, I am Dr Jeff Curtis, Professor of Medicine and Epidemiology at the University of Alabama, Birmingham and on behalf of my co-authors, I will be taking you through an overview of our recent publication entitled Characteristics, Comorbidities, and Outcomes of SARS-CoV-2 Infection in Patients with Autoimmune Conditions Treated with Systemic Therapies: a Population-based Study

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Patients with rheumatoid arthritis, psoriatic arthritis, and ulcerative colitis are potentially a high-risk group for COVID-19, given their underlying susceptibility to infection.

There are few population-based studies that assess whether patients with these conditions have a higher risk for more severe or critical COVID-19 outcomes, and if systemic therapies further modify this risk.

The objectives of the analysis was to describe the characteristics and the clinical outcomes in COVID-19 patients with RA, PsA and UC, compared with the general population diagnosed with COVID-19.

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Our descriptive retrospective cohort study used data from the US Optum® deidentified COVID-19 Electronic Health Record and is a voluntary post-authorization safety study for tofacitinib.

The study population was adults who received a SARS-CoV-2 diagnosis between February and December of 2020.

Adults with COVID-19 were diagnosed as three disease cohorts – RA, PsA and UC, who received systemic therapy, and there was a comparator cohort of those who did not meet these criteria, termed hereafter as the general population.

The primary endpoints of this study were hospitalization and intensive care unit admission within 30 days of SARS-CoV-2 diagnosis for which incidence proportions were calculated.

And in an exploratory analysis, the risk of these primary endpoints, as well as additional outcomes of interest, were made between the indicated disease and comparator cohorts, and comparisons were estimated using logistic regression models.

The first logistic regression model adjusted for demographics only and the second adjusted for demographics plus comorbidities.

The risk of hospitalization was further estimated in the RA cohort, comparing those receiving each baseline systemic therapy with the comparison cohort. The same analyses were performed with patients from the three indicated disease cohorts combined.

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This analysis included 2,306 COVID-19 diagnosed patients with RA, 421 with PsA, 811 with UC, and 311,563 COVID-19 diagnosed patients in the comparator cohort.

Patients in the indicated disease cohorts were generally older, and the RA cohort had a higher proportion of women.

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The crude incidence proportions of hospitalization within 30 days of COVID diagnosis was higher in the RA cohort, compared with PsA, UC, or comparator cohorts, whereas the incidence of ICU admission was similar.

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In exploratory analyses, with adjustment for demographics, COVID-19 patients with RA had an increased risk for hospitalization and in-hospital death, compared to the general population. And when adjusted for demographics plus comorbidities, this risk was attenuated but even despite adjustment for those comorbidities, COVID-19 patients with RA had an increased risk of other clinical manifestations and outcomes of interest as well.

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Relative to the comparator cohort, there was no statistically significant increased risk of hospitalization among patients with psoriatic arthritis.

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After adjusting for demographics, patients with UC had an increased risk of hospitalization; however, further adjustment for demographics plus comorbidities yielded a risk that was no longer statistically significant.

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The risk of hospitalization was further evaluated in COVID-19 patients with RA stratified by baseline systemic immunomodulatory therapy.

After adjustment for demographics plus comorbidities, the risk of hospitalization was lower in RA patients receiving TNF therapy relative to those receiving non-TNF biologics.

Those who were receiving non-TNF biologics had an increased risk compared to the general population.

Furthermore, the adjusted risk of hospitalization in RA patients was similar between patients receiving Janus kinase inhibitors and TNF inhibitors, and between JAK inhibitors and the comparator cohort.

Due to low sample, numbers for a similar and parallel analyses were not performed for the PsA or the UC cohorts, however, similar findings were observed when patients from all three

disease cohorts were combined; patients receiving JAK inhibitors had an increased risk of hospitalization relative to patients receiving TNF inhibitor therapy.

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This study has some limitations. The data were derived from EHR records, and immune-mediated immunomodulatory conditions were identified using ICD-10 diagnosis codes and National Drug Codes.

Furthermore, the small sample size and short duration of the baseline period may limit the interpretation of this data.

To our knowledge, this study is the largest using real-world data to evaluate the outcomes of COVID-19 in patients with these autoimmune conditions treated with systemic immunomodulatory therapies, relative to the general population.

And importantly, the risk of hospitalization was similar between those receiving tofacitinib and the comparator cohort.

These data add evidence to the current literature that those with RA, but perhaps not PsA or UC, are at higher risk for more severe or critical COVID disease.

Patients receiving systemic therapies did not appear to be at higher risk of severe COVID-19 versus the comparator cohort, with the possible exception of non-TNF biologics.

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Thank you so much.