Blood test may point to patients at higher risk for COVID-19 deterioration, death

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George Washington University (GW) researchers found five biomarkers, medical indicators found in the blood, associated with higher odds of clinical deterioration and death in COVID-19 patients. Published in

Future Medicine, these findings will help physicians better predict outcomes for COVID-19 patients in the U.S.

"When we first started treating COVID-19 patients, we watched them get better or get worse, but we didn't know why," said Juan Reyes, MD, co-author of the study and assistant professor of medicine at the GW School of Medicine and Health Sciences. "Some initial studies had come out of China showing certain biomarkers were associated with bad outcomes. There was a desire to see if that was true for our patients here in the U.S."

The research team evaluated 299 patients diagnosed with COVID-19 admitted to GW Hospital between March 12 and May 9, 2020. Of these patients, 200 had all five biomarkers being evaluated—IL-6, D-dimer, CRP, LDH and ferritin. Elevated levels of these biomarkers were associated with inflammation and bleeding disorder, showing an independent increased risk for ICU admission, invasive ventilatory support, and death. The highest odds of death occurred when the LDH level was greater than 1200 units/l and a D-dimer level was greater than 3 μg/ml.

"We hope these biomarkers help physicians determine how aggressively they need to treat patients, whether a patient should be discharged, and how to monitor patients who are going home, among other clinical decisions," said Shant Ayanian, MD, first author of the study and assistant professor of medicine at the GW School of Medicine and Health Sciences.

Currently, physicians determine risk for COVID-19 deterioration and death based on age and certain underlying medical conditions, like having an immunocompromised state, obesity, and heart disease. Performing a simple blood test for patients admitted to the emergency department, then also making decisions based on biomarkers present,

may further aid point-of-care clinical decision making. Reyes, Ayanian, and the GW research team will continue to analyze this data to help physicians make more informed decisions for patients, as well as help hospitals that may need to stratify resources.

"The association between biomarkers and clinical outcomes in novel coronavirus pneumonia in a US cohort" was published in *Future Medicine* and is available at www.futuremedicine.com/doi/10.2217/bmm-2020-0309.

More information: Shant Ayanian et al, The association between biomarkers and clinical outcomes in novel coronavirus pneumonia in a US cohort, *Biomarkers in Medicine* (2020). DOI: 10.2217/bmm-2020-0309

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