

# Antihistamines May Help Calm COVID-19 Cytokine Storm

By David Douglas

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NEW YORK (Reuters Health) - Dual histamine-receptor blockade with cetirizine and famotidine appears to reduce pulmonary symptoms and may have other benefits in patients with COVID-19, according to a new study.

"We are excited about the global potential application of this unique approach to the cytokine storm which drives morbidity and mortality in this pandemic," Dr. Reed B. Hogan II of GI Associates, in Flowood, Mississippi, told Reuters Health by email.

In a paper in *Pulmonary Pharmacology and Therapeutics*, Dr. Hogan, and colleagues note that antihistamines are safe and effective treatments for reducing inflammation and cytokine release. They might thus be of help in reducing the respiratory distress associated with COVID-19.

Histamine-1 (H1)-receptor antagonists such as cetirizine are administered for allergies, and histamine-2 (H2)-receptor antagonists such as famotidine are used to control stomach acid and heartburn. Urticaria has been successfully treated with dual histamine-receptor blockade since the 1970s.

Both classes of agents are safe and available both by prescription and over the counter worldwide. To investigate the potential utility of this approach, the researchers studied 110 COVID-19-positive patients with severe and critical pulmonary symptoms. Eleven of the patients had "do not resuscitate" (DNR) directives.

Their median age was 63.7 years, and among the most common comorbidities were hypertension (78%), obesity and morbid obesity (58%) and diabetes (43%).

As well as standard-of-care treatment, they were also given cetirizine 10 mg and famotidine 20 mg twice daily for at least 48 hours. This resulted in the rate of intubation falling from an initial 16.4% to 7.3%.

The inpatient mortality rate was 15.5% overall and 8.2% after exclusion of the DNR patients. The average number of days to discharge was 11.0.

In another group of 12 patients at the same hospital who did not receive cetirizine and famotidine the intubation rate was 41.7%, there were five deaths (41.7%) and the average hospital stay was 19.0 days. The researchers observe that these and other numbers "were not deemed sufficient for comparative statistical analysis," but "are consistent with high symptom severity and high rate of inpatient fatality in the overall admitted patient population."

Studies in the U.S., the U.K. and China have shown inpatient fatality rates ranging from 21% to 28%. Thus, say the researchers, "In essence, we observed an approximately one third reduction in inpatient deaths in the cetirizine - famotidine cohort relative to well documented clinical studies."

They are now treating most of their COVID-19 patients with the cetirizine and famotidine combination.

"The science is solid," said Dr. Hogan, "and combined with these early results is suggestive of significant potential benefit in the early disease states to blunt the inflammatory cascade and avoid hospitalization and deterioration. We are seeing many using this approach prophylactically, especially among some healthcare providers."

Dr. Hogan has applied for a US patent on dual histamine-receptor blockade in the treatment of COVID-19. He has patents on dual histamine-receptor blockade in the treatment of diarrhea and owns a related biomedical business.

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