Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Chest Infections

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THE SIGNIFICANCE OF ORAL ASCORBIC ACID IN PATIENTS WITH COVID-19

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PURPOSE: It is understood that COVID-19 creates a cytokine storm, which ultimately leads to patient demise. A key antioxidant, Vitamin C (ascorbic acid), has been shown to decrease the production of cytokines leading to benefits in sepsis secondary to both viral and bacterial infections. By utilizing the known paradigm of suppressing the cytokine release, some recently emerging studies have shown mortality benefit with intravenous ascorbic acid when used in COVID-19 patients, however, there appears to be less information regarding ascorbic acid benefits when given via the oral route. Our study observed the mortality and extubation rate in COVID-19 patients receiving oral ascorbic acid.

METHODS: A retrospective single-center cohort study was used to design the project. Patients who met the inclusion criteria were those who were admitted to our hospital for COVID-19 related symptoms and also tested positive for COVID-19 by a nasopharyngeal swab. The patients were divided into two groups of those who received a course of oral ascorbic acid and those who did not receive ascorbic acid. Those in the ascorbic acid group received daily oral doses that ranged from 500 mg to 1500 mg. Patients who received intravenous ascorbic acid were excluded. The primary outcome analyzed was the overall mortality rate, while secondary outcomes analyzed were the extubation rate and mortality rate in ICU patients.

RESULTS: Of the total of 210 patients, 176 patients met our inclusion criteria. Of these, 96 patients were in the ascorbic acid group, including 30 ICU patients, of which 28 were intubated. 80 patients were in the control group who did not receive any ascorbic acid, including 27 ICU patients, of which 19 were intubated. The overall mortality was 23% in the ascorbic acid group compared to 33% in the control group ($p>0.05$). In our intubated patients, the extubation rate in the ascorbic acid group was 78% compared to 58% in the control group ($p>0.05$). The ICU mortality rate was 50% in the ascorbic acid group compared to 59% in the control group ($p>0.05$).

CONCLUSIONS: Our study found that COVID-19 patients receiving oral ascorbic acid had a statistically insignificant tendency toward decreased overall mortality, increased extubation rate, and decreased ICU mortality compared to the control group. The role of ascorbic acid in COVID-19 patients has not been clearly defined by clinical trials. With the low side effect profile, it has been administered in higher doses in intravenous form frequently in many hospitals with anecdotal evidence showing benefit. In our study, it was observed that patients were given oral ascorbic acid at a lesser dose than would be given if in the intravenous ascorbic acid form.

CLINICAL IMPLICATIONS: Our observational study showed even when ascorbic acid is administered in oral form as an adjunct to COVID-19 therapy, it is associated with a mortality benefit and improved extubation rate.

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