

An observational study on the use of oral vitamin C in critically ill stage-5 patients with COVID-19 infection

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ABSTRACT

Introduction: The evidence-based use of the oral form of Vitamin C as adjuvant treatment for critically ill COVID-19 patients is lacking worldwide despite its intravenous preparation form being demonstrated to be potentially beneficial in some studies. The present study objective was to evaluate the effects of oral Vitamin C in the treatment of severe COVID-19. **Methods:** This was an open-label observational study with propensity score matching on unvaccinated, similar medication history, hospitalized stage-5 severe COVID-19 patients, who were treated with daily 2g, 4g, or 6g of oral Vitamin C respectively from November 2020 to December 2021. The clinical data were collected retrospectively for analysis. The study outcomes were 28-day in-hospital mortality, the proportion of mechanical ventilation-free days (MVFD), the Day 1, Day 3, and Day 7 of both the inflammation progression (c-reactive protein) and the Sequential Organ Failure Assessment score (SOFA). **Results:** A total of 147 patients were recruited. The number of subjects in the 2g, 4g, and 6g Vitamin C groups was 43, 44, and 60 respectively. There was no significant difference in the 28-day mortality ($p=0.336$), the MVFD ($p=0.486$), the c-reactive protein level on Day 1 ($p=0.856$), Day 3 ($p=0.977$), Day 7 ($p=0.462$), and the SOFA score on Day 1 ($p=0.540$), Day 3 ($p=0.149$) and Day 7 ($p=0.754$) between the three Vitamin C dosing groups. **Conclusion:** The present study showed that the oral form of Vitamin C provided no benefit in reducing stage-5 COVID-19 patients' hospital mortality, the mechanical ventilation requirement, or the overall inflammation progression.