

# Analysis of Zinc and Vitamin C as a Combined SARS-CoV-2 Treatment: A Systematic Review

Investigators: Saleh Houshmand, Siva Balu, Behnam Piltan, Nicole Broel-Mendelson, George Glasgow

Mentor:

Dr. Daphne Santhosh, PhD

Professor & Chair of Admissions  
Department of Microbiology and Immunology



## Objectives

- Assess routes of zinc and vitamin C which are most effective for improving SARS Cov-2-positive patient health prognosis.
- Determine efficacy of zinc and vitamin C in reducing need for ventilation, hospitalization, and mortality rates.

## Introduction

- SARS-COV-2, causes septic shock, which triggers a cytokine storm causing vasodilation (hypotension), acute respiratory distress syndrome (ARDS), Disseminated intravascular coagulation (DIC), and multiple organ dysfunction.
- The utilization of zinc supplementation was observed in second study to result in reduction of ventilator pneumonia (Shah, GS. et al. 2012).
- A study demonstrated the efficacy of 6-24g of vitamin C a day diminished mortality caused by SARS-COV-2 (Holford, P. et al. 2020).

## Methods

- Clinical trials which implemented vitamin C and Zinc as adjunct treatments for SARS-CAR-2, patients were analyzed.
- Statistical analysis were conducted with data collected from the clinical trials to determine significance.

- Odds Ratio
- Paired T-test
- Forest Plot Assessment graphs

## Results

Figure. 1 Oral Zinc Mortality Rates

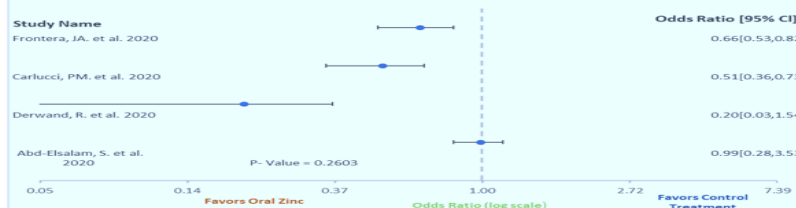


Figure. 2 Oral Zinc and Ventilation Rates

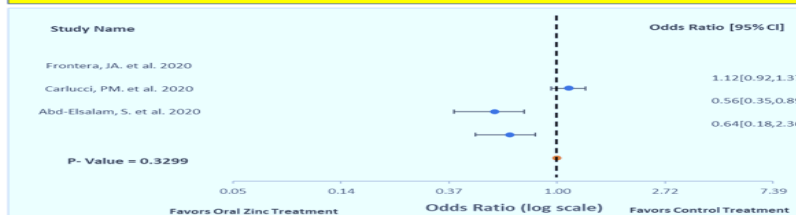


Figure. 3 Oral Zinc and Hospitalization

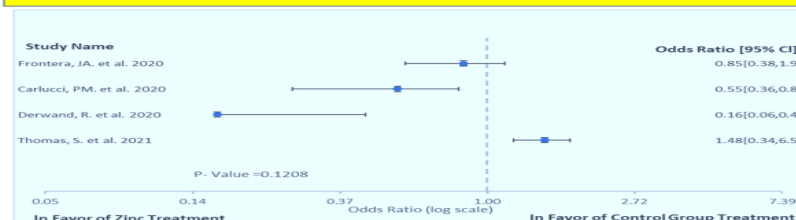


Figure. 4 IV Vitamin C and Ventilation

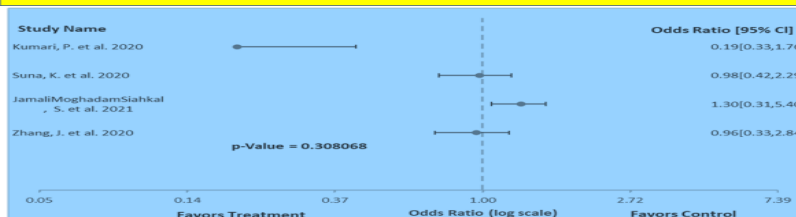


Figure. 5 IV Vitamin C and Hospitalization

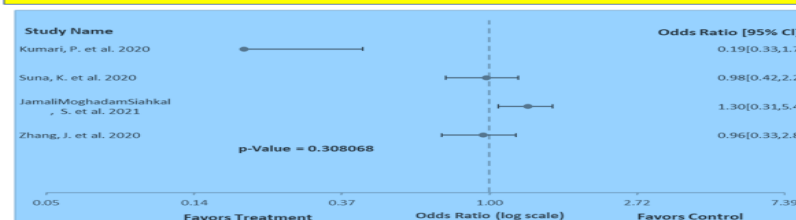
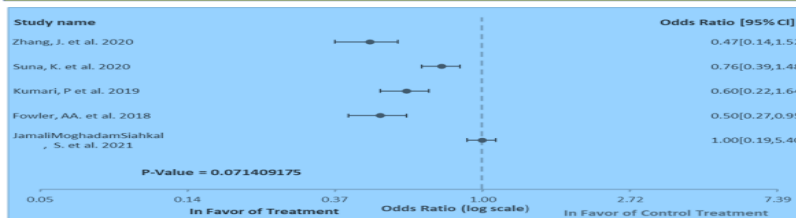


Figure. 6 IV Vitamin C Mortality Rates



## Results

Figure. 4 IV Zinc and Ventilation Need

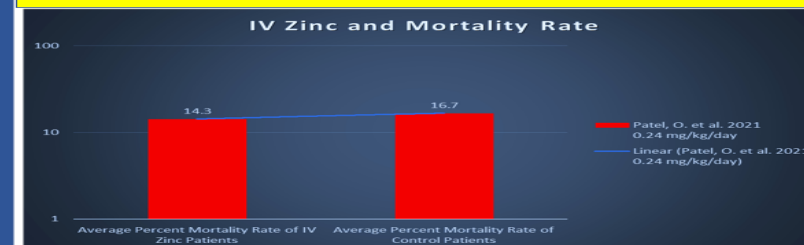
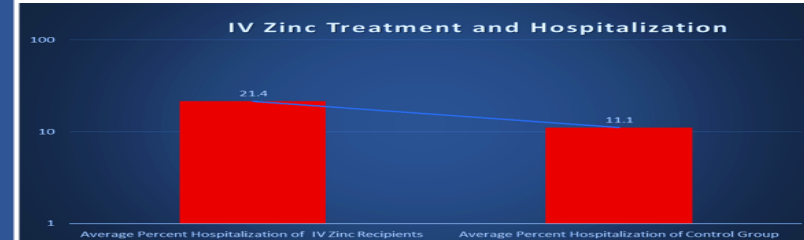


Figure. 1 IV Zinc Mortality Rates



Combined Zinc and Vitamin C Clinical Trial

- 58 participants, only 7 (12.1%) hospitalized, 2 (3.4%) died from SARS-CoV-2 complications (Thomas, S et al. 2021).

## Discussion or Summary of Results

- The results of the findings were not significant  $p > 0.05$ .
- However, Zinc and vitamin C treated patients slightly fared better.

## Conclusions

- More clinical trials are essential to determine the effectiveness of zinc and or vitamin C on SARS CoV-2-positive patient recovery.

## References

Kumari, P., Dembra, S., Dembra, P., Bhawna, F., Gul, A., Ali, B., Sohail, H., Kumar, B., Memon, M. K., & Rizwan, A. (2020). The Role of Vitamin C as Adjuvant Therapy in COVID-19. *Cureus*, 12(11), e11779. <https://doi.org/10.7759/cureus.11779>