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Acil Tıp Uzmanları Derneği

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BİLDİRİ KİTABI

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POSTER BİLDİRİLER

PS - 004 EFFECT OF INTRAVENOUS VITAMIN C SUPPLEMENTATION FOR PREVENTING COVID-19 DISEASE AGGRAVATION

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OBJECTIVE: The potentially fatal disease, coronavirus disease 2019 (COVID- 19), has caused a worldwide pandemic since December 2019. To date, a variety of anti-inflammatory therapies, including steroids, vitamins, minerals, and immunomodulating drugs, have been attempted to fight COVID-19. Ascorbic acid also known as vitamin C, is commonly recognized for its capacity to reduce inflammation and scavenge free radicals.

Vitamin-C can support the epithelial barrier against pathogens and help with innate and adaptive immunity. Vitamin-C deficiency can increase the risk of infections. According to the reports, serum levels of vitamin-C are significantly lower in patients with septic shock compared with the patients with non-septic shock, and the incidence of organ damage is inversely related to the level of vitamin-C. Given the positive effect of intravenous vitamin C for viral - induced acute respiratory distress syndrome and its role for enhancing the function of immune system, we aimed to investigate the correlation of the intravenous vitamin-C supplementation with reduce in-hospital mortality among COVID-19 patients.

METHODS: This meta-analysis was reported in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. Electronic databases were interrogated (Scopus, Embase, MEDLINE and the Cochrane Library) using the terms „Vitamin C" OR "L-Ascorbic acid" OR "Ascorbic Acid" AND "COVID-19" OR "Corona Virus Disease 2019" OR "novel coronavirus" OR "SARS-CoV-2". The search was conducted from January 2020 to September 1st 2022. We include only randomized crossover trials. Review manager (Revman version 5.4, The Cochrane Collaboration, The Nordic Cochrane Centre, Copenhagen, Denmark) was used. The risk ratio (RR) and 95% confidence interval (CI) was calculated using the Mantel-Haenszel mode.

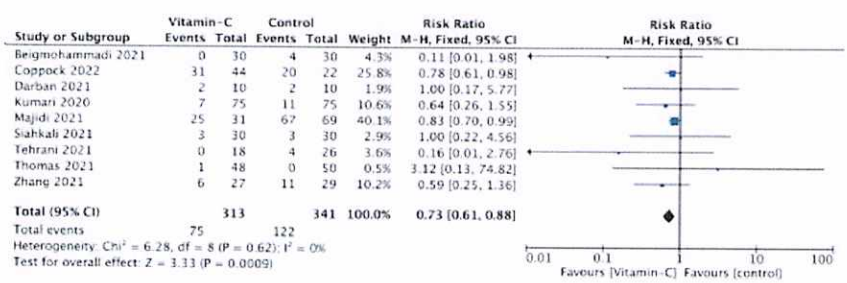
RESULTS: Nine studies were meet of inclusion criteria's of this meta-analysis. The 9 studies added up to 654 patients (313 treated with vitamin-C and 341 treated without vitamin-C). Mean age of patients treated with and without COVID-19 was 52.86±16.74 vs. 54.9±16.72 years, respectively.

Pooled analysis of in-hospital mortality among COVID-19 patients treated with and without vitamin C supplementation varied and amounted to 24.0% vs. 35.8% respectively (RR=0.73; 95%CI:0.61 to 0.88; p<0.001; Figure 1). The individual study and overall bias summaries are reported in Figure 2.

CONCLUSIONS: We find significantly reduction of in-hospital mortality in the COVID-19 group who were treated with intravenous vitamin-C. These results indicate that the administration of vitamin C should be considered in COVID-19 therapy and may have a positive effect as a supplement to previously known basic therapies.

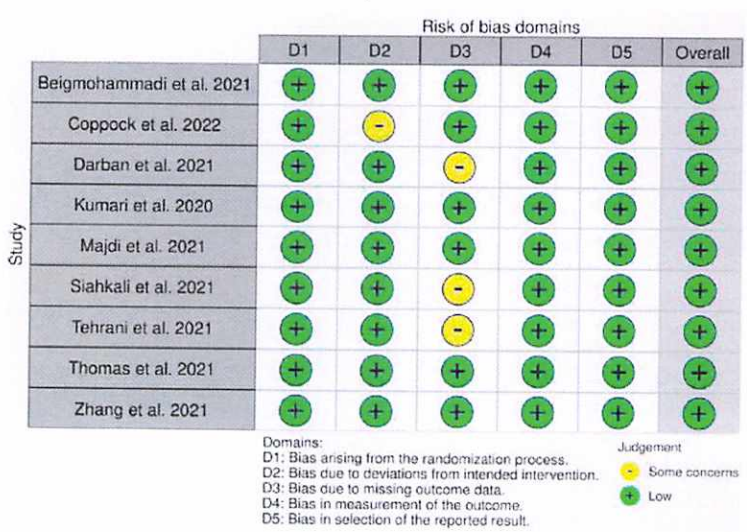
KEYWORDS: vitamin c, Ascorbic Acid, SARS-CoV-2, COVID-19, severity

Figure 1.



Forest plot in-hospital mortality among COVID-19 patients treated with and without vitamin C. The center of each square represents the risk ratios for individual trials, and the corresponding horizontal line stands for a 95% confidence interval. The diamonds represent pooled results.

Figure 2



A summary table of review authors' judgements for each risk of bias item for randomized trials