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# Use of N-Acetylcysteine at high doses as oral treatment for patients hospitalized with COVID-19

Jose L. Izquierdo Alonso; Joan B. Soriano Ortiz; Y. González Fernández; S. Lumbreras Sancho; J. Ancochea Bermúdez; C. Echeverry; J.M. Rodriguez Gonzalez-Moro

**Abstract-**

**Infection by SARS-CoV-2 causing coronavirus disease 2019 (COVID-19) can be associated with serious and life-threatening conditions, including acute respiratory distress syndrome (ARDS). Severity and mortality have been related with release of cytokines and chemokines (or cytokine storm), an imbalance of oxidative stress, and a pro-thrombotic state.We constructed an observational retrospective cohort from a community-based large population of hospitalized COVID-19 PCR+ patients admitted from March 01, 2020 to January 24, 2021) with integrated primary to tertiary care information in Castilla la Mancha, Spain. We explored the potential benefits of the antioxidant, anti-inflammatory and anti-thrombotic drug N-acetylcysteine (NAC) administered orally in high doses (800 mg every 8 hours), added to standard care in COVID-19 patients by using the free text information contained in their electronic health records (EHRs).Out of 19,208 patients with a diagnosis of COVID-19 hospitalized, we studied 2,071 (10.8%) users of oral NAC at high doses. COVID-19 patients treated with NAC were older, predominantly male and with more comorbidities such as hypertension, dyslipidemia, diabetes and COPD when compared with those not on NAC (all p <0.05). Despite greater baseline risk, use of NAC in COVID-19 patients was associated with significantly lower mortality (OR 0.56; 95%CI 0.47 – 0.67), a finding that remained significant in a multivariate analysis adjusting by baseline characteristics and concomitant use of corticosteroids. There were no significant differences with the use of NAC on mean duration of hospitalization, admission to the intensive care unit or use of invasive mechanical ventilation. The observed association signalling to better relevant outcomes in COVID-19 patients treated with NAC at high doses should be further explored in other settings and populations and in randomized controlled trials.**

**Index Terms- COVID-19, N-acetylcysteine, mortality, use of health services, treatment**

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