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Commentary

Effect of Azithromycin on COVID-19 Patients

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1. Description

Antibiotics with possible antiviral and anti-inflammatory characteristics are being studied in clinical trials as a COVID19 therapy. Antibiotics are used with the purpose of treating the viral condition, not primarily to treat bacterial confections in COVID19 patients. Based on Randomized Controlled Trials (RCTs), a complete assessment of the current information regarding the effectiveness and safety of antibiotics as antiviral therapies for COVID19 is required. For COVID-19 pharmacological therapy, the Antimicrobial Macrolide Azithromycin (AZM) has a unique characteristic. Azithromycin is not an effective treatment for COVID-19 patients admitted to the hospital, either alone or in conjunction with hydroxychloroquine, according to randomized trials. However, there is a scarcity of data on the efficacy of azithromycin for treat-ing suspected COVID-19 in the community, since quicker treatment could recover and avoid hospitalization. The arguments for azithromycin medication for COVID-19 patients have been discussed below.

Developing therapies which may be used in the community to hasten recovery and prevent COVID-19-related hospitalizations is vital, especially for older adults and people with comorbidities who are at a higher risk of negative outcomes. Azithromycin, a licensed, widely accessible, inexpensive, and generally safe antibiotic, has been proposed as a COVID-19 treatment, with *in vitro* studies indicating efficacy against various viruses, including SARS-CoV-2 [1,2]. Azithromycin may raise the pH of the Golgi network and recycling endosome, interfering with SARS-CoV-2 activity and replication within the cell. The medicine may also lower levels of the enzyme furin, which could make it harder for SARS-CoV-2 to enter cells because the virus's spike protein is thought to have a furin-like cleavage site. The capacity of azithromycin to lower the levels of proinflammatory cytokines diminish the ability of SARS-CoV-2 infection to cause a cytokine storm and tissue damage. Furthermore, some individuals with viral respiratory illness may acquire a subsequent bacterial infection or have a bacterial co-infection that azithromycin can treat. During the COVID-19 pandemic, the usage of azithromycin in primary care possibly contributing to antibiotic resistance [3,4].

Participants were enrolled on the day, got their first dosage of azithromycin within 4 hours of randomization, and were followed up on days 14 and 28 according to the study protocol. It's vital to note whether enrolment and randomization took place on the same day to further understand this timetable. There were no pre-established rules or recommendations for the azithromycin regimen. Clinical environment, azithromycin coupled with HCQ had a synergistic antiviral activity against SARS-CoV-2 [5,6]. On SARS-CoV-2, AZM alone had a strong antiviral impact, according to the study. The mechanisms of AZM's antiviral activity support a broad antiviral activity. The antibiotic azithromycin appears to reduce virus entrance into cells.

Additional aspect of Azithromycin and its antibiotic activity, which could be useful in preventing or treating SARS-CoV-2 co-infection. According to new research, anaerobic bacteria in the lung micro biota may have a role in SARS-CoV-2 pathogenesis. SARS-Cov2 could be internalized by cells, which have been detected in abnormally high numbers in individuals with severe illness. In the lungs, *Prevotella spp*. is commensal anaerobic bacteria. They play a role in idio-pathic inflammatory lung disorders by boosting the generation of IL-6 and IL8. Prevotella in-fections can be treated with azithromycin, which reduces inflammation caused by the bacteria.

Azithromycin has anti-SARS-CoV-2 action *in vitro* and may act at different stages of the viral cycle. It has immunomodulatory capabilities, such as the foundation to prevent cytokine production, maintain epithelial cell integrity, and prevent lung fibrosis. In other viral infections, azithromycin usage was linked to a reduction in mortality and ventilation days. These characteristics could be useful throughout COVID-19. However, there is little and poor quality evidence of its use. In retrospective observational studies, azithromycin was usually used in conjunction with hydroxychloroquine, which was found to be ineffective. This macrolide has a well-established safety profile. The role of azithromycin in the COVID-19 will be determined in future clinical trials.

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