

The Covid-19 Treatment Soup: Is Combination Therapy Better?

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The number of people affected by SARS-CoV-2 virus and contracting the coronavirus disease (COVID) continues to increase worldwide. While everyone eagerly awaits the discovery of a vaccine to help curb this pandemic, there will still be a few more months before a vaccine is approved and available in the market. In the interim, it is imperative to identify treatment modalities that can help improve outcomes for COVID infected patients as well as reduce mortality. Developing a new antiviral drug may take years before it is approved for clinical use and may not be the most feasible route during these immediate needs. This has led to the reutilization of several older medications and studying their effects on treating this novel virus. There are several ongoing clinical trials performed all over the world, to identify the most effective and safe treatment regimen for treating the COVID-19 infection. One such combination regimen recently published in *The Lancet*, from a phase 2 clinical trial, includes the combination of interferon beta-1b, lopinavir-ritonavir, and ribavirin [1]. Authors utilized their experience from treating influenza virus due to the similarity in peak time for viral loads for influenza and COVID-19 viruses. They compared use of combination triple antiviral drugs (interferon 1-b, lopinavir-ritonavir, and ribavirin) versus single effective agent (lopinavir-ritonavir) to assess their impact on improving viral load as well as clinical parameters for patients admitted with a high viral load for COVID-19. Triple therapy patients had a significantly better clinical and virologic response leading to a shorter hospital stay as compared to those in the monotherapy group. While most trials that have been published thus far have been retrospective in nature, this prospective study shows promising results. We look forward to seeing the impact of this triple therapy regimen in phase 3 clinical studies as well as further studies looking at more critical and severely ill patients. While there are several individual drugs that have shown to have benefit in-vitro against betacoronaviruses, it is logical to see if there is a higher benefit with combined use of some of these treatment agents, with no additional severe adverse events. This thought has led to the development of several ongoing clinical trials where researchers are analyzing the effects

of combination therapy. Some of those combinations include the use of hydroxychloroquine and azithromycin, as well as the combination of remdesivir with baricitinib, or with leronlimab [2-4]. While concerns of drug shortages continue to increase, these clinical trials with different combination treatment regimens provides hope for other effective treatment possibilities and will likely help optimize our current drug resources.

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