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Since our initial blog post on azelastine HCl regarding its use both for allergic rhinitis as well as emerging data on its antiviral impact, new data has emerged demonstrating the efficacy of azelastine HCl nasal spray for reducing COVID-19 infections.

Azelastine HCl, a second-generation histamine H-1 receptor antagonist, is commercially available and widely used for management of allergic rhinitis. Recent research suggests that in addition to its widely known benefit for treatment of allergic rhinitis, azelastine may also have antiviral activity against a range of respiratory viruses, including influenza A (H1N1), respiratory syncytial virus (RSV), and SARS-CoV-2, the virus responsible for the COVID-19 pandemic.1

Though multiple factors likely contribute to the antiviral properties of azelastine HCl, two mechanisms in particular that may impact proposed utility for COVID-19 infection reduction are the ability of azelastine HCl to interact with angiotensin converting enzyme 2 (ACE2) and azelastine HCl's ability to interact with a vital protease of SARS-CoV-2.1,2

Given this proposed benefit, studies have sought to evaluate the potential benefits of the regular use of azelastine HCl nasal spray as a way to reduce respiratory viral infections. In our previous blog post, we discussed an exploratory study of 90 patients evaluating azelastine HCl at 0.02% and 0.1% concentrations for reduction of viral load (as evaluated by quantitative PCR) in patients with known SARS-CoV-2 infection. Patients in azelastine HCl treated groups had negative PCR results earlier and more frequently. By day 8 of the evaluation no patients in the placebo group had negative PCR results as compared to 18.52% and 21.43%

in the 0.1% and 0.02% azelastine HCl groups respectively.2 This study and other data inspired further investigation into the antiviral activity of azelastine HCl.

A new study published in the fall of 2025 evaluated azelastine HCl 0.1% nasal spray applied three times daily (one puff per nostril) vs placebo over a 56-day period. In addition to regular three times daily treatment, patients who were in close contact with a SARS-CoV-2 infected person as well as patients with known active SARS-CoV-2 infection were instructed to temporarily escalate treatment dose to one puff in each nostril five times daily for a period of three days before resuming normal treatment.

Treatment was generally well tolerated, though, the azelastine HCl group did report higher rates of bitter taste, nosebleeds, and tiredness. Over the course of the 56 day evaluation period, in the azelastine HCl group 2.2% of patients tested positive for SARS-CoV-2 while 6.7% of the placebo group tested positive. Of these patients, only 1.8% were symptomatic in the treatment group as opposed to 6.3% in the placebo group. Overall, there was a 67% reduction in COVID-19 infection in the azelastine HCl treatment group as well as a reduction in symptomatic infections.1

Though more data is needed, existing information suggests that azelastine HCl could be a low cost and effective intervention for prevention and amelioration of common respiratory viral infections.

References:

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2. Klussmann, J.P., Grosheva, M., Meiser, P. et al. Early intervention with azelastine nasal spray may reduce viral load in SARS-CoV-2 infected patients. Sci Rep 13, 6839 (2023). https://doi.org/10.1038/s41598-023-32546-z

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