

Nasal Secretion Calcium Lowering Drugs in Post Covid-19 Olfactory Dysfunction

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Background

Calcium elevation in nasal secretion has been linked with post-COVID-19 olfactory dysfunction. We conducted this systematic review and meta-analysis to test the efficacy of nasal secretion calcium-lowering drugs in post-COVID-19 persistent olfactory dysfunction.

Methods

We searched PubMed, Scopus, Cochrane CENTRAL, Embase and Web of Science. Studies that test nasal secretion calcium-lowering drugs in post-COVID-19 patients who have persistent olfactory dysfunction have been included. We conducted a single-arm meta-analysis using Review Manager software for statistical analysis. Applying mean difference, its 95% confidence interval and the random effect model, we compare the continuous outcomes of the Threshold, Discrimination, and Identification (TDI) score based on the Sniffin' Sticks test.

Results

We included four randomized clinical trials (RCTs) with a total of 224 participants. We found significant differences in all the components of the olfactory score (TDI): Threshold, Discrimination, Identification, and Total score in favor of the drugs with the following values respectively. (MD=3.11, 95% CI [0.41, 5.81], $p=0.02$), (MD= 3.52, 95% CI [1.33,5.71], $p=0.002$), (MD= 3.81,95% CI [2.01,5.61], $P < 0.0001$), (MD =10.44, 95% CI [2.47, 18.40], $p=0.01$). Also, there was a significant difference in calcium cation concentration (MD=-16.28, 95% CI [-23.87,-8.69], $P<0.0001$).

Conclusion

Nasal secretion calcium-lowering drugs showed a significant improvement in post-COVID-19 persistent olfactory dysfunction.

Keywords

Calcium-lowering drugs, Meta-analysis, Calcium cation concentration, Sniffin' Sticks test