

# Simple Public Health Interventions Such As Use of Hypertonic Saline Oral And Nasal Rinse Could be Beneficial in COVID-19 Patients



Farhan Raza Khan

BDS, MS, MCPS, FCPS

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The recent coronavirus disease (COVID-19) is known for causing a severe acute respiratory syndrome. The outbreak of coronavirus disease originated at Wuhan, China and later became a global pandemic. As of June 01, 2020, there are at least 6,281,750 individuals affected with COVID-19 infection, globally. Of these 2,854,299 (45.4%) have already recovered and 374,229 (5.9%) have died. The status of presently infected 3,427,451 individuals reveals that 3,000,107 (98%) are likely to recover owing to their mild condition but the other 53,398 (2%) are in critical condition and have significantly high risk of dying.<sup>1</sup> In other words, COVID-19 has a mortality rate in the range of 4-7%. However, when the data is stratified on age, over 72% of all deaths were observed in individuals who were > 65 year old.

In Pakistan, to date over 72,460 people have been affected with this virus, 1,543 deaths recorded.<sup>2</sup> Pakistan is managing this pandemic with various strategies including promotion of social distancing, lock-down of cities and putting strict restrictions on people's movement. Although, the COVID-19 pandemic is in full swing the numbers are likely to increase depending upon the how stringent is the adherence to the preventive strategies. As a dentist, what should be our role in the present pandemic? First of all, following the international guidelines (provided by bodies such as ADA and NHS), all elective procedures that involve aerosol should be halted. Use of PPE including N-95 masks made mandatory, a better screening using telephonic inquiry should be employed before actual patient visit. Emphasis on the travel history, fever and sore throat is extremely important before embarking upon any dental treatment. However, advising on carrying out dentistry in a continuous positive pressure/ negative pressure room does not appear practical.

The intervention at public health level is aimed at prevention rather than actual treatment. Moreover, for a public health intervention to be successful, it has to be cost

effective and simple. ADA has recommended use of 1% hydrogen peroxide as a pre-operative rinse before dental examination. However, the quality of evidence behind this recommendation is unknown. Therefore, it high time that dentists and otolaryngologists should carry out original studies to explore which topical antimicrobial agent has the best antiviral efficacy against COVID-19 virus.

There are simple measures that could turn out to be effective. One of such example is the hypertonic saline. Local data suggests that nebulization with 3% hypertonic saline over normal saline in viral respiratory tract infection is beneficial.<sup>3</sup> Possibility exists that reducing viral load through debriding could aid in the mobilization of immune response. This is similar to debriding wound, as it's known that wound debridement shortens the healing time. It has been documented that if nasal irrigation with hypertonic saline is employed in upper respiratory tract infection, the duration of illness was significantly lowered along with the substantial decrease in the needs for medications.<sup>4</sup> The corona virus is known to bind at the ACE-2 receptors in the respiratory epithelium. Recent findings suggest that there is a strong positive correlation between age and ACE-2 gene expression in the nasal epithelium.<sup>5</sup> These receptors are least expressed in younger children but their count increased significantly in the older children and adults, explaining why older people are differently affected with this infection. Using hypertonic saline as topical nasal lavage in the early stage of viral colonization could have a mechanical wash away effect thus preventing the COVID-19 infection. However, quality randomized controlled trials are needed to determine whether such simple interventions has any role in reducing the viral load from the oro-nasopharynx.

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Associate Professor, Department of Surgery, Aga Khan University.

Corresponding author: "Dr. Mehwash Kashif" < [mehwashkashif@gmail.com](mailto:mehwashkashif@gmail.com) >

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