

## The Oro-Tonsillar-Nasal Hygiene Triad-A Paradigm Shift for COVID-19

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Aspiration of bacteria from the mouth, nose and throat increases the morbidity and mortality of COVID-19 due to the super infection which increases severity. In previous influenza pandemics, the deaths were mainly attributed to bacterial super-infections.<sup>[1]</sup> A similar pattern is with different strands of coronavirus, where the streptococcal adherence along the respiratory tract leading to pneumonia and lung inflammatory damage which inhibits the clearance of bacteria.<sup>[2]</sup> It is the responsibility of physicians to diagnose and treat all co-morbidities especially in older people and refer patients to the dentist who should diagnose, treat and prevent all dental disease. The patients should learn oral, throat and nose hygiene and perform it repeatedly, especially at night.

Periodontal disease and dental caries cause an abnormal increase in pathological oral bacteria. We propose the "Oro-Tonsillar-Nasal Hygiene Triad" as well as "Dry-Tooth-Brushing" (OTN-DTB) aimed toward achieving optimum disease-free hygiene maintenance. Due to mechanical action the toothbrush is the main factor responsible for removing plaque. Brushing with toothpaste is inadequate and leaves plaque.<sup>[3]</sup> "Dry Tooth Brushing" (DTB) dislodges the bacterial plaque and food accumulation from tooth surfaces. Tongue scraping, interdental brushing, dental floss and oral irrigation decrease the bacterial load. Patients' methods for oral hygiene may require modification. We suggest a combination of techniques as no single cleaning aid works best universally. Fluoride toothpaste twice per day is added to prevent caries. Remnants of food accumulate in the tonsillar crypts harbouring more bacteria. For "cleaning of the tonsillar area" at least after major meals, particularly essential at night-time, we propose a gargle/oral rinse with warm saline water (NasoWash, Nasopure, Isomar and other brands)/povidone-iodine (PVP-I, Betadine, Wokadine, Pyodine, Clinisine and other brands) which presents with better anti-viral activity than other antiseptics.<sup>[4]</sup>

The nose harbours bacteria, Staphylococcus species being predominant. The "hygiene of the nasal passages" uses a nasal spray or an oropharyngeal wash of 0.3 ml 0.5% PVP-I solution achieved by sucking a little warm saline water/ PVP-I into each nostril and blowing it out from the same nostril or using an atomising device (two sprays for average device) or a syringe.<sup>[4,5]</sup>

Because of being inter-linked, these three comprehensive oral/nasal/pharyngeal hygiene measures involving brushing of the teeth, cleaning of tonsils and nasal lavage can be termed the "Oro-Tonsillar-Nasal Hygiene Triad" (OTN). Dry tooth brushing (DTB) along with OTN is a paradigm shift to attain desired oro-dental health in this period of COVID-19 infectivity and as a routine post-pandemic.

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