

Tobacco Cessation and COVID-19: A Perspective

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CORONAVIRUS DISEASE-2019

Severe acute respiratory syndrome coronavirus (SARS-CoV-2) is a novel strain of coronavirus which was first detected in Wuhan, a city in China's Hubei province in December 2019, after an outbreak of pneumonia without an obvious cause. Coronavirus disease-2019 (COVID-19) is now spread to over 200 countries and territories across the globe, and was declared as a pandemic by the World Health Organization (WHO) on March 11, 2020.^{1,2} Severe acute respiratory syndrome coronavirus is a new strain of single-stranded RNA coronavirus (coronaviridae) that has not been previously identified in humans; but otherwise affects other mammals, birds, and reptiles. According to the United States Centers for Disease Control and Prevention, its incubation period ranges from 2 to 14 days.³ As per a few Chinese researchers, SARS-CoV-2 may be infectious during its incubation period.⁴ The symptoms are usually mild in most cases ranging from a sore throat, cough, fever, breathlessness, fatigue, loss of smell, loss of taste, and malaise. Many patients are asymptomatic. In patients with preexisting comorbidities and some elderly, progression to acute respiratory distress syndrome (ARDS), pneumonia, and multi-organ dysfunction is also observed. The fatality rate ranges from 2 to 3%.⁵

TOBACCO AND COVID-19

The growing evidence informs us about active smoking and its relation with the increased severity of the infection and even death in hospitalized COVID-19 patients. One of the meta-analysis studies showed a significant association between the progression of COVID-19 and smoking.⁶ Smokers were found to have a higher risk of contracting coronavirus infections as compared to non-smokers. Also, smokers have comorbidities like hypertension, chronic obstructive pulmonary disease, and diabetes which further lead to higher mortality and fatal course of the disease. Smoked and smokeless forms of tobacco also increase the chances of contracting the virus and its spread owing to the use of contaminated hands and fingers in preparing and sharing tobacco products and through droplets *via* spitting, coughing, etc.⁷

There is an increased expression of ACE-2 in alveolar macrophages and type-II pneumocytes in cigarette smokers. This is especially noted at the apical end of the small airway epithelium when compared to the people who do not smoke. The binding of the virus to ACE-2 cell surface proteins protects it against body immune surveillance systems. The virus remains attached to the host cells for longer times. This makes them an effective carrier; thus, making the host more prone to potential infections and spread. Later on, the virus gains entry into the host cell networks by the engulfment of ACE-2. With mutations and processes that alter the immune functions of the host leading to host evasion,

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the virus survives and proliferates. The proteolytic activation of viruses like SARS-CoV-2, SARS-CoV, and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is caused by furin, trypsin-like serine proteases including transmembrane serine protease 11A (TMPRSS11A), TMPRSS2, and TMPRSS11D. Smoking leads to an increase in androgenic hormones like testosterone. The receptor for testosterone increases the expression of TMPRSS2. Nicotine upregulates ACE-angiotensin (ANG)-II-ANG II type I, renin-angiotensin system (RAS) receptor axis, and downregulates the ACE/ANG-(1-7)/Mas receptor axis, which may have synergistic action in cardiopulmonary disorders. The smoke associated with tobacco products leads to inflammation of the lungs and mucosa which causes an increase in inflammatory cytokines and tumor necrosis factor-alpha (TNF alpha) expression. This causes increased permeability in epithelial cells, increased production of mucous with impaired clearance of mucociliary cells.⁸

CURRENT SITUATION OF TOBACCO USAGE IN TOBACCO ADDICTS VISITING DENTAL INSTITUTIONS

Most of the patients visiting dental institutions are unaware of the association between tobacco use and COVID-19. Very few patients know about the harmful effects of tobacco on the lungs and overall immunity and risk of contracting virus related to preparing tobacco products by hands and sharing them. Hence, sadly, the pandemic has not affected tobacco usage in many addicts. Fortunately, a small percentage of tobacco users have reduced or quit tobacco considering the overall scare of the pandemic, lockdown situation of limited or no access to the products, increased cost, ban on spitting at public spaces or home, etc. Few individuals have considered this situation as an opportunity to make quit attempts. On the other hand, few individuals succumbed to the pandemic stress and it worsened their addiction and negated previous quit attempts.

CHALLENGES ENCOUNTERED IN THE COUNSELING OF ADDICTS IN THE PANDEMIC AS COMPARED TO PREPANDEMIC TIMES

The counseling sessions which used to be conducted before the pandemic are definitely affected during COVID times. The challenge faces are general scare of the population to visit the dental institution unless there is an emergency, hesitance of patients to follow mandatory hospital protocols, reluctance to sit across the table for audio-visual information, scare of contracting the virus through handling pen and papers and denial to be present for follow-up visits. The patients are also less likely to be accompanied by relatives or friends who could also be sensitized about the cessation measures.

DUTY OF HEALTHCARE PROFESSIONALS— PRACTICAL MEASURES OF TOBACCO CESSATION IN THE ERA OF COVID-19

Considering the number of avoidable fatalities caused by tobacco-related diseases, tobacco cessation measures should not take a back seat in India at any point of time. It is the prime duty of dental healthcare professionals to constantly help patients to quit tobacco and adapt to the changing times. The very fact of association of tobacco in the progression of COVID-19; especially in smokers can be reiterated to motivate quitting tobacco. Lockdown conditions and increased indoor times can surely be utilized to advantage. Aggressive audio-visual advertising of the facts will promote tobacco cessation. Implementation of tobacco bans, increased taxes and costs, stringent legal action on smoking and spitting in public areas will curb active and hence passive smoking and tobacco chewing. In COVID times, telephonic counseling and follow-ups may prove very effective. Mobile phone-based apps and cessation programs will be useful. Easy access and prompt reply by toll-free National QuitLine numbers can play a major role. Follow-up records and quit attempt records should be maintained digitally.⁹ Various quick surveys can be undertaken by patients to fill the knowledge gaps. A multidisciplinary approach can be used for individuals facing psychological issues. The telemedicine approach seems to be effective for the detection of premalignant and malignant conditions caused by tobacco products. The patients may self-examine the oral cavity and mobile services, wats app, internet facilities can be used for the diagnosis and treatment, and follow-up of these patients.¹⁰ It will also help people taking Nicotine Replacement Therapy and Pharmacotherapy. This is in

consideration with catering to large populations and access of such facilities in remote areas as well these days. Few researchers have made custom modifications in the armamentarium of tobacco cessation considering COVID times. Munarini et al. have modified the components of Smokerlyzer used for measuring carbon monoxide in the exhaled breath of smokers. This was aimed to reduce cross-contamination during testing.¹¹ Such studies definitely encourage other researchers. During tobacco cessation counseling or therapy, the therapists should undoubtedly protect themselves by using personal protective equipment, face shields, masks, and adequate mandatory care.

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