REVIEW ARTICLE

INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation Journal Home Page: www.ijrps.com

COVID-19 and Dentistry — Are we Ready

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Article History:

Received on: 04 Nov 2020
Revised on: 24 Nov 2020
Accepted on: 26 Nov 2020

Keywords:

COVID-19,
Aerosols Transmission,
PPE,
Tele-screening

ABSTRACT

The pandemic of coronavirus infection 2019 (COVID-19) started from Wuhan, China, in December a year ago and has become a significant test to general wellbeing China as well as nations around the globe. Affecting the population of 4,735,622 in the world and leads to the death of 316,289 till 19th May 2020, according to reports of WHO. The COVID-19 spread rapidly by a human to human contact through small droplets from mouth and nose. Other possible routes of transmission for COVID-19, include airborne spread via aerosols produces during dental procedures. The dentists are at higher risk of getting infected by coronavirus disease with many routine dental procedures having the possibility to transmit the virus through aerosols. During the time of COVID-19 pandemic disease, the health care workers should be provided with protective apparatus including face shields, goggles, mask, gloves, gown or coverall, headcover and rubber boots. American Dental Association has maintained a consistency neutral stance since the pandemic was recognized. They appealed dental health care workers to put off elective dental procedures for dental patients and to provide only urgent dental care. Essential phone screening to distinguish suspected patients or likely COVID-19 contaminated can be correctly done during routine dental arrangements. This review highlights on the structure of coronavirus, its modes of communication, how dental health care workers are at higher risk, urgent dental procedures that should only begin during the crisis and basis preventive measures taken by dental health care workers.

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ISSN: 0975-7538

DOI: https://doi.org/10.26452/ijrps.v11iSPL1.3692

Production and Hosted by

IJRPS | www.ijrps.com

INTRODUCTION

India is a nation of 1.32 billion. The World Health Organization suggests, one specialist, to serve 1,000 individuals, overall degrees of care (Kumar *et al.*, 2019). (On January 8, 2020, it was officially reported that the causative pathogen of COVID-19 was the novel corona virus by the Chinese place for infection control and Prevention (Li *et al.*, 2020). The pandemic of coronavirus disorder 2019 (COVID-19) started from Wuhan, China, in December a year back and has become a huge problem to general well being in China as well as other countries (Phelan *et al.*, 2020).

On January 30, 2020, it was declared by the World Health Organization (WHO) that this episode had established a general health crisis of worldwide concern. It was at first named 2019-nCoV and afterwards formally changed to severe acute respiratory syndrome coronavirus 2 (SARS- CoV-2) (Meng *et al.*,

2020).

At a media preparation on 11 March 2020, the coronavirus 2019 (COVID-19) was declared as a pandemic disease by the Executive General of the World Health Organization (WHO) (Alharbi *et al.*, 2020).

The main instance of COVID-19 was affirmed and revealed in Wuhan, China, in December 2019. It has quickly spread to numerous nations and has become one of the pandemic infections, influencing population 4,735,622 in the world and prompts the passing of 316,289 till 19th May 2020, as indicated by reports of WHO. Coronaviruses are single-stranded RNA infection secured inside the envelope. The infection has higher paces of transformation and recombination. The coronavirus incorporates the spike surface glycoprotein(S), little envelope protein (E), network protein (M), and nucleocapsid protein (N). The COVID-19 spread quickly by a human to human contact through little droplets from mouth and nose and including clinical manifestations like fever, hack, discomfort, dyspnea and pneumonia. Different highlights incorporate sputum creation, sputum with blood, headache and gastrointestinal indications, for example, the runs, sickness and vomiting. The potential courses of transmission for COVID-19, incorporate airborne spread by means of aerosols produced during dental procedures (Vinayachandran and Balasubramanian, 2020; Peng *et al.*, 2020).

Coronavirus is for the most part transmitted by cough, wheeze, and droplet inhalation and transmission via contact (contact with mouth, nose and eye mucous layers). Patients with coronavirus generally present with indications like fever, dry cough and myalgia. Patients may likewise show manifestations like queasiness, loose bowels, the diminished feeling of smell (hyposmia), and strange taste sensation (dysgeusia). The infection (COVID-19) spread has posed critical difficulties for dentistry and medicine, and dental and clinical schools, in completely influenced nations (Ather *et al.*, 2020).

All the dental specialists out there have the most serious danger of securing the coronavirus ailment with numerous routine dental procedures having the capacity to transmit the infection through aerosols. There are a few patients who are asymptomatic (transporter) patients just as patients with an intense respiratory ailment may introduce for dental treatment at outpatient dental settings. The enormous dread of cross disease and the chance of spreading contamination in dental practice have obliged the dental specialists to make a stride in reverse and make themselves home isolate like other non-social insurance segments of the population. Likewise, the dental experts are requesting for an individual protective kit that comprises of clothing to secure themselves. The standard PPE comprise of gloves, cover, and outfit. Be that as it may, in such emergencies of airborne contaminations like COVID-19, some extra supplies ought to be given to social insurance labourers including a face mask, goggles, face shield, gloves, gown or coverall, head caps, and rubber boots. The knowledge of this coronavirus disease is still growing. Therefore, dental practices should be primed to consider likely as coronavirus infection (Singh *et al.*, 2020).

Possible transmission routes of coronavirus in dental clinics

The asymptomatic incubation time frame for people contaminated with novel coronavirus infection has been accounted for to be roughly 1–14 days. What's more, it was confirmed that those without signs can spread the disease. To et al. found that live contaminations were accessible in the salivation of infected individuals by viral culture method.

Dental clinicians, just as patients, can be presented to infections and bacteria. These microscopic living beings taint the mouth and respiratory tract. Dental consideration settings perpetually convey the danger of coronavirus disease because of the specificity of its techniques. That includes up close and personal correspondence with patients, and unremitting introduction to salivation, blood and other body fluids, and the treatment with sharp dental instruments.

This disease can be transmitted in dental settings through breathing in of airborne microorganisms which can remain suspended in the air noticeable all around for extensive stretches of the period. It can likewise be transmitted through direct contact with blood, oral fluids, or other patient materials, contact of conjunctival, nasal, or oral mucosa with drops and aerosol products containing microorganisms made from an infected individual and induced a short detachment by coughing and talking without a mask, and underhanded contact with arched instruments or conceivably contaminated surfaces (Peng *et al.*, 2020).

Airborne transmission of infections can happen essentially through two different ways:

Either through bigger Liquid practices (10–100 μm) or through littler particles called mist concentrates (<10 μm). The bigger beads fall on the ground by gravity quickly and subsequently, transmission requires close personal physical contact, while the aerosolized transmission may happen over bigger separations and doesn't really require contaminated

and defenceless people to be co-situated at the equivalent time. The drops from the respiratory tract and salivary organs seem, by all accounts, to be the essential transmission courses of COVID-19 illness through breathing, ingestion, as well as immediate mucous contact. In fact, it has been prompted that such droplets can go till four meters with an uncovered mouth (Loh *et al.*, 2020).

The impact of COVID-19 outbreak on dental professionals

American Dental Association has kept up an impartial consistency position since the pandemic was perceived. They called upon dental specialists to defer elective dental strategies for every single dental patient and to give just crisis dental consideration. They further explained the importance of dental crises as "possibly dangerous conditions that require quick treatment to quit progressing tissue dying, ease extreme agony, or disease"; in this way, the crisis conditions showed for treatment incorporate cellulitis, uncontrolled dying, or injury.

What all will be the kinds of pressing dental consideration was additionally explained in detail to the dental experts who incorporate serious dental pain certain diseases, for example, pericoronitis, postoperative osteitis, dry attachment or sore/cellulitis; injury, for example, suggestive broke tooth or separation/luxation; just as certain earnest helpful methodology. There are numerous parts of COVID-19 that are identified with a dental practice, notwithstanding contamination control, including avoidance and treatment. There is additionally various clinical appearance that influence the orofacial area and that dental specialists ought to be comfortable with. This outline tends to the clinical dental parts of COVID-19 disease.

It is coordinated to the dental medicinal services workforce to recognize them on the suggested rules for arrangement of dental wellbeing administrations during this period of emergencies and to clarify the significant realities of the COVID-19 disease with pertinence to the orofacial area and dental medicinal services. These angles are partitioned into three segments: prevention, treatment, and oral signs.

Prevention

The American Dental Association on March 16, 2020, suggested that dentists avoid all elective or non-emergency procedures and offer just the dental emergency treatment.

Tele-screening

Phone screening to perceive suspected patients or plausible COVID-19 contamination can be unequivocally done during routine dental checkups. There were mainly two inquiries identified with telephone screening, and they were — any movement history to COVID-19 contaminated areas and the presence of febrile respiratory ailment (FRI) indications, for example, cough and fever. A positive response to any of these two inquiries would expand the underlying concern and the dental specialists should postpone the elective dental consideration for in any event two weeks.

Patient assessment and care protocol

Patients ought to provide a detailed clinical history, a survey of COVID-19 screening, and appraisal of a real emergency review. Individuals with suspected COVID-19 pollution will be arranged in a specific, well and adequately ventilated sitting territory on any occasion 6 feet away from patients undergoing treatment who are not infected. Patients should wear a mask and practice appropriate respiratory hygiene, for example, use a tissue to cover their mouth and nose when coughing or wheezing, and a while later discard the tissue. Apply 70% ethanol to clean the clinical units (circulatory strain sleeves, thermometers, etc.)

Dental treatment guidelines

Some extreme cases, for example, facial plane infections or dentoalveolar injury, would most likely require emergency dental treatment for the patients who are the suspects or affirmed instances of COVID-19 (Ge *et al.*, 2020; Marui *et al.*, 1939).

Infection Controls for Dental Practice

Dental experts ought to have the option to recognize an associated case with COVID-19. By and large, a patient with COVID-19 who is in the extraordinary febrile time of the disease isn't recommended to visit the dental place. In the occasion that occurs, the dental master should have the alternative to recognize the patient with suspected crown contamination malady.

The dental authority should not treat the patient in the centre, anyway rapidly separate the patient and report to the illness control office at the soonest opportunity. Right when the patient goes to the clinic, the temperature level of the patient should be assessed. A no-contact temple thermometer is generally proposed for the screening. A survey should be used to screen patients with potential defilement of coronavirus before they could be coordinated to the dental seat side.

Disease control for dental practice incorporates

Hand cleanliness It is significant for the dental specialist as a feco-oral course for the transmission has

been accounted for.

Personal defensive measures for the dental experts' airborne droplet transmission of contamination is viewed as the principle course of spread, especially in dental facilities and emergency clinics. Therefore, obstruction insurance gear, including defensive eyewear, covers, gloves, tops, face shields, and defensive outwear, is emphatically suggested during the pestilence time of 2019-nCoV.

Mouth wash Before any dental method, an antimicrobial mouth flush is normally accepted to lessen the number of oral microbes. Chlorhexidine, which is usually utilized as a mouth wash in dental practice, may not be viable to kill 2019-nCoV. Coronavirus is powerless against oxidation, preprocedural mouth wash containing oxidative agents, for example, 1% hydrogen peroxide or 0.2% povidone is suggested.

Rubber Dam Isolation- The utilization of rubber dam significantly limits the creation of spit, saliva and prevents blood scattering in the air.

Cleansing of the facility settings-The centre settings ought to be cleaned and sanitized as per the Convention for the Administration of Surface Cleaning and Purification of Clinical Condition.

Management of clinical waste-The clinical waste, including expendable defensive gear after use, should be shipped to the brief stockpiling region of the clinical institute. The clinical and local waste produced by the treatment of patients with suspected or confirmed coronavirus disease is viewed as infected clinical waste (Peng *et al.*, 2020).

Patient Evaluation

Upon appearance in dental practice, all patients should give a point by point clinical history, fill a COVID-19 screening poll. The patient's temperature level ought to be estimated by dental experts with the assistance of a noncontact forehead thermometer. Patients who present with fever (100.4F 38C), as well as any sort of respiratory ailment manifestations, should abstain from having elective dental consideration for at any rate fourteen days.

Patients should wear a careful cover and follow appropriate respiratory cleanliness. They should cover the mouth and nose with a tissue before coughing and wheezing and afterwards dispose of the tissue.

Exacting individual insurance measures ought to be taken up by dental specialists and they ought to stay away from or limit activities that can deliver drops or aerosol products. The 4-hand procedure can be advantageous and ought to be executed for controlling contamination. The creation of drops and vaporizers can be decreased with the utilization of low or high volume saliva ejectors (Ather *et al.*, 2020).

Management of operating area

The working region ought to be overseen correspondingly. The staff should work at a sufficiently good way from patients at whatever point conceivable; hand pieces must be furnished with hostile to reflux gadgets to keep away from any kind of pollutions, improving the danger of cross-contaminations. During the working meetings, the dental specialist ought to lean toward methods that will diminish the amount of airborne delivered in the ground. Notwithstanding giving satisfactory intermittent ventilation, all surfaces, seats, tables, magazines, entryways and windows that come into contact with social insurance experts and patients must be considered as "conceivably contaminated". An alcoholic disinfectant and masks must be made accessible to patients in the lounge area. Purification of the whole cooling framework must be done regularly (Spagnuolo *et al.*, 2020).

Appropriate removal of plastic waste mirrored the propensity for the family is a pushed zone which should be improved. The beneficial thing is that understudies have the mentality to surrender the utilization of plastic packs and to mindful others about the evil strength of utilizing plastics (Khanam *et al.*, 2019).

Noninvasive ventilation (NIV) has developed as a significant device for the administration of intense hypoxic respiratory disappointment (AHRF) (Zodpey *et al.*, 2018).

Oral Manifestations-Salivary gland infection

The genome of COVID-19 infection has been recognized in saliva in most of the patients with the demonstrating the potential disease of salivary organs (Dziedzic and Wojtyczka, 2020). The fascinating part is to realize that at times, COVID-19 was identified in salivation, with no confirmation for its quality in the nasopharynx (Chin *et al.*, 2020).

Positive salivary tests demonstrate a probability of transmission through the spread of saliva as respiratory infections typically spread by means of direct contact and furthermore by airborne creation from mouth and nose, i.e., through wheezing or coughing (Meng *et al.*, 2020).

Taste alterations

Among all the signs and manifestations of COVID-19, loss of taste and smell have been perceived recently as one of the side effects of COVID-19. The Italian researchers gave reports expressing that out of 59

COVID-19 positive patients, 20 patients experienced an olfactory issue that is about 33.9% and 11 out of 59 experienced both the symptoms that are about 18.6% (20). Taste and smell issue for this situation could be clarified by the way that SARS-CoV-2 has been known for its cooperation with angiotensin changing over compound 2 (ACE2) receptor, to encourage its entrance into the cell, and this receptor is generally communicated on the epithelial cells of oral mucosa and the cerebrum (Peng *et al.*, 2020).

Dental specialists ought to know about this indication since they may experience patients with taste variations from the norm as dysgeusia. This is especially significant in light of the fact that these side effects may go before the beginning of symptomatic respiratory appearances of the infection. Nonetheless, announcing of this side effect ought to be taken with alert as the influenced patients are known to be of the mature age bunch who are as of now vulnerable to taste and smell issue (Dave *et al.*, 2020; Wax and Christian, 2020).

Pharmacotherapy- COVID-19 treatment and oral health

Drugs which are utilized regularly and tentatively in the treatment of COVID-19 patients cause reactions. Anyway, their advantages exceed the inconveniences. As a result of extraordinary pharmacotherapy, some of the patients significantly after full recuperation from coronavirus disease may experience the ill effects of dental/oral issue related with delicate tissues, salivation creation, and so on (Ferretti *et al.*, 2020). As explicit pharmacological treatment for coronavirus disease is still not defined. The World health organization, as of late, started to approve different meds for the potential treatment of serious COVID-19 complexities. They contain Remdesivir, chloroquine/hydroxychloroquine, consolidated lopinavir and ritonavir, and interferon-β. Right now, joined research endeavours has been taken to focus on creating and actualizing new medications, essentially hostile to inflammatories, safe modulatory or potentially monoclonal antibodies, to control the invulnerable reaction related with the absolute most serious instances of the COVID-19, as opposed to assaulting the infection straightforwardly (Du *et al.*, 2020; van Doremalen *et al.*, 2020).

CONCLUSION

This survey article advises around a few point by point functional techniques to square infection transmission to give a reference to forestalling the transmission of 2019-nCov during dental determination and treatment, including understanding assessment, hand cleanliness, individual defensive measures for the dental experts, mouth rinse before dental strategies, elastic dam disconnection, hostile to withdrawal handpiece, disinfection of the facility settings, and the executives of clinical waste. This infection can be transmitted in dental clinics and hospitals through inhalation of airborne microorganisms which can stay suspended in the air for significant stretches of time. It can likewise be transmitted through direct contact with blood, oral fluids like saliva or other patient materials, contact of conjunctival, nasal, or oral mucosa with droplets and aerosolized products containing microorganisms created from an infected individual and moved in closed spaces by coughing and talking without a mask, and roundabout contact with polluted instruments and additionally natural surfaces. We as dental specialists have been experts of forestalling cross pollution since decades and have battled numerous irresistible and transferable ailments; HIV, Tuberculosis, Hepatitis, flu, among numerous others; since we are prepared to avoid potential risk as our calling seemed to be, is and consistently will be in danger. Just along these lines, we will have the option to keep our calling from falling in a descending winding. We have prepared ourselves in any event, for doing an assessment of patients with full face secured. So, we ought to talk about the beneficial things we can do even during circumstances such as the present and not make the patients stress that we are not readied.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

Funding Support

The authors declare that they have no funding support for this study.

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