



Preci of Dental Practice Post Covid 19 Pandemic: A Review

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Abstract

An overview of the challenges the dental practitioners face in delivering their routine dental care during the COVID 19 pandemic and also post-pandemic times. This review paper was made to highlight the minimal modifications that dental practitioners have to incorporate in their regular practice to avoid cross-infection and also to save themselves from being victims of the COVID-19 pandemic.

Keywords: *Dentistry; Practice; COVID 19 Pandemic; The Second Wave*

Overview

The world for the last one and half years have been facing an alarming public health emergency due to a severely infectious condition named the COVID-19 pandemic. The first case of this deleterious disease was reported at Wuhan City, Hubei Province, China in late December 2019. World Health Organization (WHO) after studying the determinants and spread of the infection declared Coronavirus disease as a pandemic on March 11th, 2020 [1]. Since then several countries have been ravaged with loss of livelihood owing to prolonged lockdown, economic backdrop, lack of experience towards handling a major public health emergency, lack of resources including equipment and manpower. The healthcare systems faced overwhelming work pressure and abuses due to inadequate equipment to handle this pandemic situation [2]. Lack of established treatment modalities has also posed threat to the lives of Covid-19 affected families. Substantial clinical, descriptive and analytic research has laid down a better understanding of the virus and also highlighted precautions and management of the disease. Detailed descriptions of the causation cycle also have improved the performance of laymen towards restricting the spread of the disease [3-6].

The causative agent of the COVID-19 virus includes an RNA virus named SARS-CoV-2. A major challenge faced by the scientists was the capability of the virus to genetically evolve itself through mutations that were characteristically different than their ancestors. The United Kingdom reported the first variant to be B.1.1.7 Lineage (or VOC 202012) towards late December 2020. South Africa reported another variant as the B.1.352 Lineage (or 501Y.v2). A

third VOC was B.1.1.248/B1.1.28/P1(or 501Y.V3) was reported towards early January 2021, and another new strain B.1.427/B.1.429 lineage was identified in California recently [7,8].

SARS-CoV-2 possesses a global threat to several countries even today. Some of the countries like Italy, Britain, and India endure a second wave outbreak of the disease worsening the lives of their countrymen. Throughout this entire span, the health care systems have faced immense difficulties towards delivering optimal treatment qualities and footfall. The second wave in India started by March 2021 and was worse than that of the first wave. Earlier 0.7% of the Indian population was affected, while the number increased to 0.36% this year. Daily reports of the COVID 19 affected individuals counted up to a 0.4million daily with true cases ranging even more during April 2021 [8,9]. While the second wave represented other health problems like Mucormycosis as an epidemic in many states the overall market of health care was at stake [10]. Dentistry has faced a major setback during this period of a pandemic. Owing to higher viral load in the oral, pharyngeal, and laryngeal regions and confirmatory diagnosis through these areas, the anxiety among the patients and the clinicians towards dental treatments has changed during this period. Thus, this particular review was made to look into the dental practice during the COVID-19 pandemic.

Methodology

An explicit search of various articles dating from 2019 onwards was done through Pubmed, MEDLINE, Scopus, and Web of Science search engines. MeSH (Medical Subject Headings) terminologies

were used to find articles related to the domain of the review. Keywords included: dentistry, oral disease, COVID-19, dental practice management. A total of 40 articles were shortlisted. Information was extracted from 21 eligible articles. Repetitive information was excluded. The data was compiled and formatted based on the ingredients and their applications.

Modifications in dental practice

1. Reception area modifications [7,9,11]:
 - a. Widening the reception area to facilitate social distancing of the patients.
 - b. Increasing the number of seats to accommodate patients.
2. Screening of the Patients before they enter the clinical area [9,12]:
 - a. Thermal Screening and sanitization of the hands or especially the palms of the patients to avoid contamination through touch.
 - b. History taking by the receptionist including Travel history, History of Covid 19 infection, Mucormycosis infection, Exposure to a Covid 19 positive patient, etc.
 - c. Medication history - (This is to re-check on the truthfulness of the patient's exposure).
3. Modifications in the clinical area [8,9,11,11-14]:
 - I. Dental Chair - Use of disposable chair covers, tray covers, glasses, suction tips could avoid cross-contamination among the patients.
 - II. Personal Protective Equipment (PPE) - Face Shield, Face Mask - Respirators could be of various range; N series, F series are the commonly used respirators, usage of double masks, Eye guard, head cap, Full-length gown [Can be disposable or wash and autoclavable], Double gloves, Slippers with shoe covers.
 - III. Prepare the patient by initial rising the oral cavity with Chlorhexidine 2% mouth rinse or diluted Povidone Iodine 2% solution of hydrogen peroxide whichever is available nearby.
 - IV. Use of air purifiers.
 - V. The use of eco-friendly suction machines or high-evacuation suction devices would help purify aerosol-rich air present in the clinical area.
 - VI. The clinical area should be a negative pressure room for aerosol-generating procedures.
 - VII. The limited presence of Dental Health care workers to only the one who is needed for patient's assistance.
 - VIII. Instruments - Majorly instruments stored in UV chambers post autoclaving should be used
- IX. Anti-retraction function enabled dental handpiece.
- X. Usage of Rubber Dam to avoid droplet splatter and aerosol generation.
- XI. Minimize use of ultrasonic devices, high-speed handpieces, and 3-way syringes.
- XII. Endodontic Procedures should be practiced with dilute 1% sodium hypochlorite to extend supplies without compromising outcomes.
- XIII. Appointment Spacing - The clinical area should be actively sanitized using fogging machines after each patient and almost a minimum gap of fifteen minutes should be kept between two patients.
- XIV. Surfaces should be disinfected using EPA-approved chemicals and a dry environment should be maintained.
- XV. Practicing Four-Handed Dentistry is a mandate during COVID-19.
4. Tele-consultation should be adapted. Diagnosis of the dental problems should be made through video conferencing.
5. Triage protocols to be followed.
6. Health education should be done through online media.

Challenges faced by dental clinicians in practicing during COVID 19 pandemic [15-17]:

1. Economic burden:
 - a. Due to an increased maintenance cost, the margin of interest in dentistry has come down. Although there is a need to increase the treatment cost, the clinicians are refraining from doing so with the fear of patient loss.
 - b. An extra burden to the clinicians to maintain all safety measures and also deliver dental services at an acceptable rate have posed.
2. Perceived stress and anxiety [8,18,19]:
 - a. A lot of researches have been conducted to measure the levels of stress among dental clinicians and it was seen that a majority of the dentists are victims of moderate stress which has pushed them towards depression. This could be owing to loss of patients, lack of proper income, fear of getting infected, fear of getting infected, fear of unavailability of adequate hospital services or major treatment modalities.
 - b. Shutting down of many clinics owing to increased debit amount than credit amount posed a major threat to mental peace among dentists.
 - c. Rural Dental Practice is a major challenge because of inadequate patient consciousness and availability of suitable recourses available.
3. Inadequate knowledge of the clinician and varied opinions of the Key opinion leaders and the associations.

Copious studies have been done to report the changes in routine dental practice; the internet has been flooded with education videos on safety measures used during dental practice. This review is novel in describing the scenario of the Dentistry and Dental market post-second wave of this COVID-19 pandemic [3,17,20,21].

Conclusion

Dentistry since time memorial was the only patient compliant surgical speciality. Time to time the aseptic protocols have been updated. Post COVID-19 pandemic there are precautionary changes in the dental practice which have increased the burdens on the dental clinicians. Adaptation to the changes would improve the quality of the practice and lead to reduced risks of disease transmission. Although the clinicians are subjected to high stressful conditions, situations would improve with the improvement of time.

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