

Role of Dentist Revisited in CoViD19 - An Overview

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Abstract

Since CoViD-19 was declared a pandemic by the World Health Organization, it was associated with a high fatality rate and high rate of transmission. The dentists were then instructed by regulatory authorities to stop providing treatment to dental patients except those who have emergency complaints. This was mainly for protection of dental healthcare personnel, their families, contacts, and their patients from the transmission of virus, and also to preserve the much-needed supplies of Personal Protective Equipment (PPE). Present scenario demands that dentists should also be updated on how this pandemic is related to their profession in order to be well oriented and prepared. This overview will address several issues concerned with the CoViD-19 pandemic that directly relate to dental practice in terms of prevention, orofacial clinical manifestations and importantly revisiting the role of dentist.

Key Words : CoViD -19, Dentist, Oral manifestations.

Introduction

Number of epidemics have affected India and other countries in the past, to name a few H1N1, H5N1, avian influenza, Ebola, SARS, Zika, Nipah and others which were successfully tackled¹. A novel human CoronaVirus initially referred to as the Wuhan CoronaVirus(CoV), currently designated as Severe Acute Respiratory Syndrome (SARS)-CoV-2, is responsible for the latest pandemic that is affecting human health and economy across the world². By imposing a nationwide lockdown, India has curtailed the spread of this virus to a certain extent; however, the total number of reported cases continued to rise³.

Following the announcement of pandemic by authorities, dental professionals were left with only option of curtailing their practices which were considered to be high risk. But now in this present scenario where living with this present conditions is need of the hour, thus dental professionals must be fully aware of infection spreading modalities, how to identify patients with this infection, and most importantly,

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self-protection considerations. At the same time, we would also like to raise an argument on importance of including dentists in the intensive care unit multiprofessional team to improve oral health in critical patients, not only CoViD-19 patients, but also, to contribute to evidence-based and decision-making in managing infectious diseases.

Discussion:

Two factors that were considered for making dental profession high risk: all procedures are obviously performed in the mouth with direct contact with saliva and the exposure to aerosols produced by rotatory instruments. Many articles have been published regarding to the spread of the virus and the role that saliva plays in its transmission and diagnosis⁴. Despite all of the precautions taken, it is almost impossible to reduce droplet and aerosol production to zero during dental procedures⁵. Therefore, it can be deduced that CoronaVirus is capable of transmitting through dental practice; this transmission can be from patients to clinic staff or other patients at the clinic⁶. Research has shown that CoronaViruses can remain on metal, glass, and plastic surfaces for several days and can actively maintain their virulence at room temperature from 2 hours up to 9 days. As surfaces in dental clinics serve as venues for droplets and

aerosol mixed with patient's saliva and/ or blood, they can effectively help spread infection. It is also reported in the literature that their activity at 50% humidity was significantly higher than 30% so a dry and clean dental environment will play a significant role in preventing transmission this infection⁶.

The novel virus:

Much is spoken about the causative organism the CoronaVirus, which are a large family of viruses that may cause severe illnesses, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). These viruses are common in animals with the potential of transmission to humans. They are composed of an envelope, a lipid layer, and single-stranded large RNA. The name "Corona" ("crown" in latin) is attributed to the spherical shape and surface projections⁷. Four subfamilies have been identified: alpha-, beta, gamma-, and delta-CoronaViruses. Beta-CoronaViruses seem to originate from mammals, namely bats; it was found that the genome sequence of SARS-CoV-2, the virus responsible for CoViD-19, is >90% identical to a bat CoronaVirus RaTG13. In fact, bats represent a natural reservoir for a wide variety of CoronaViruses including SARS-CoV-like and MERS-CoV-like viruses. SARS-CoV-2 is closely related to the SARS-CoV virus, and it belongs to the B lineage of the beta-CoronaViruses, which are known to cause severe disease and fatalities⁷.

Identifying patients with this infection:

The most common signs and symptoms of this infection include cough, headache, sore throat, hyposmia, hypogeusia, diarrhoea, dyspnoea and pneumonia⁸. Some oral manifestations have been observed in patients with Corona Virus Disease 2019 (CoViD-19)⁸. However, there is still a question about whether these lesions are due to CoronaVirus infection or secondary manifestations resulting from the patient's systemic condition. Current research shows that CoronaVirus damage to respiratory and other organs could be related to the distribution of Angiotensin-Converting Enzyme 2 (ACE2) receptors in the human system⁹. Therefore, cells with ACE2 receptor distribution may become host cells for the virus and further cause inflammatory reactions in related organs and tissues, such as the tongue mucosa and salivary glands.

In spite of present progressive research, a safe pharmacological agent against CoViD-19 yet to be found, and the potential drugs in use are related to several adverse

reactions, including oral lesions¹⁰. Oral manifestations include opportunistic fungal infections, recurrent oral Herpes Simplex Virus (HSV-1) infection, unspecific oral ulcerations, fixed drug eruptions, dysgeusia, xerostomia linked to decreased salivary flow, gingivitis and periodontitis¹⁰. Self-protection considerations: Instructions that all practitioners in the field of dental care, including dentists, assistants, and others, should consider when treating patients or those suspected of having CoronaVirus given by CDC, ADA and DCI guidelines which are updated from time to time for our usage. A simple algorithm utilized for the protocol adopted for treatment of dental patient is presented in the [Figure I]⁶.

Management protocol:

As per the information provided by American Dental Association (ADA) a detailed protocol that helps to decide what constitutes a dental emergency [Figure II]¹¹ however, dentists should use their professional judgment in determining a patient's need for urgent or emergency care are described¹¹. After a decision has been made that the patient needs to visit the dental clinic, the next step should be to evaluate the patients for signs and symptoms of CoViD-19 infection to determine in which clinical setting they should be seen. According to Centers for Disease Control and Prevention (CDC) guidance, patients with active CoViD-19 infection should not be seen in dental settings and should be referred for emergency care where appropriate transmission-based precautions are available¹².

Role of dentist revisited:

A health care worker like dental professional whose role cannot be denied in the diagnosis and management of oral lesions in this suspected or diagnosed patient of CoViD - 19, their importance of including multiprofessional team to improve oral health in critical patients, not only CoViD-19 patients, but also in other infectious diseases needs attention and appraisal.

Oral lesions are sparsely reported in the literature which cannot differ saying that oral lesions are not reported. The reasons for absence of sufficient scientific evidence reporting oral lesions may be due to the confinement situation, lack of access to test therefore diagnosis confirmation, and the fact that most dentists, as a result of the high risk contagion, have been out of the health system. Nevertheless, telemedicine has been a useful tool to establish triage and primary diagnosis avoiding personal attendance during the peak of infection.

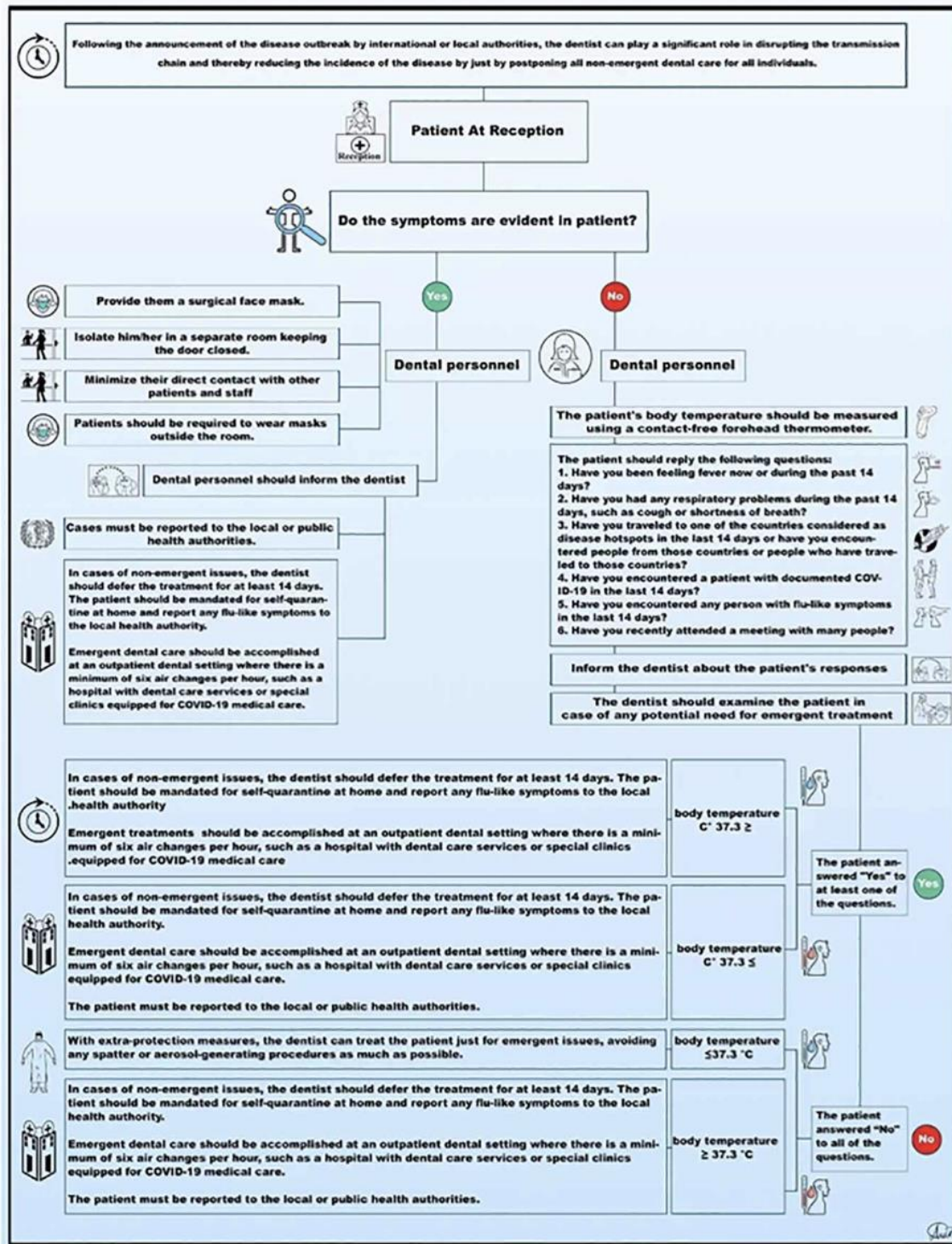


FIGURE I : Protocol for treatment of dental patient during CoViD 19 pandemic.⁶

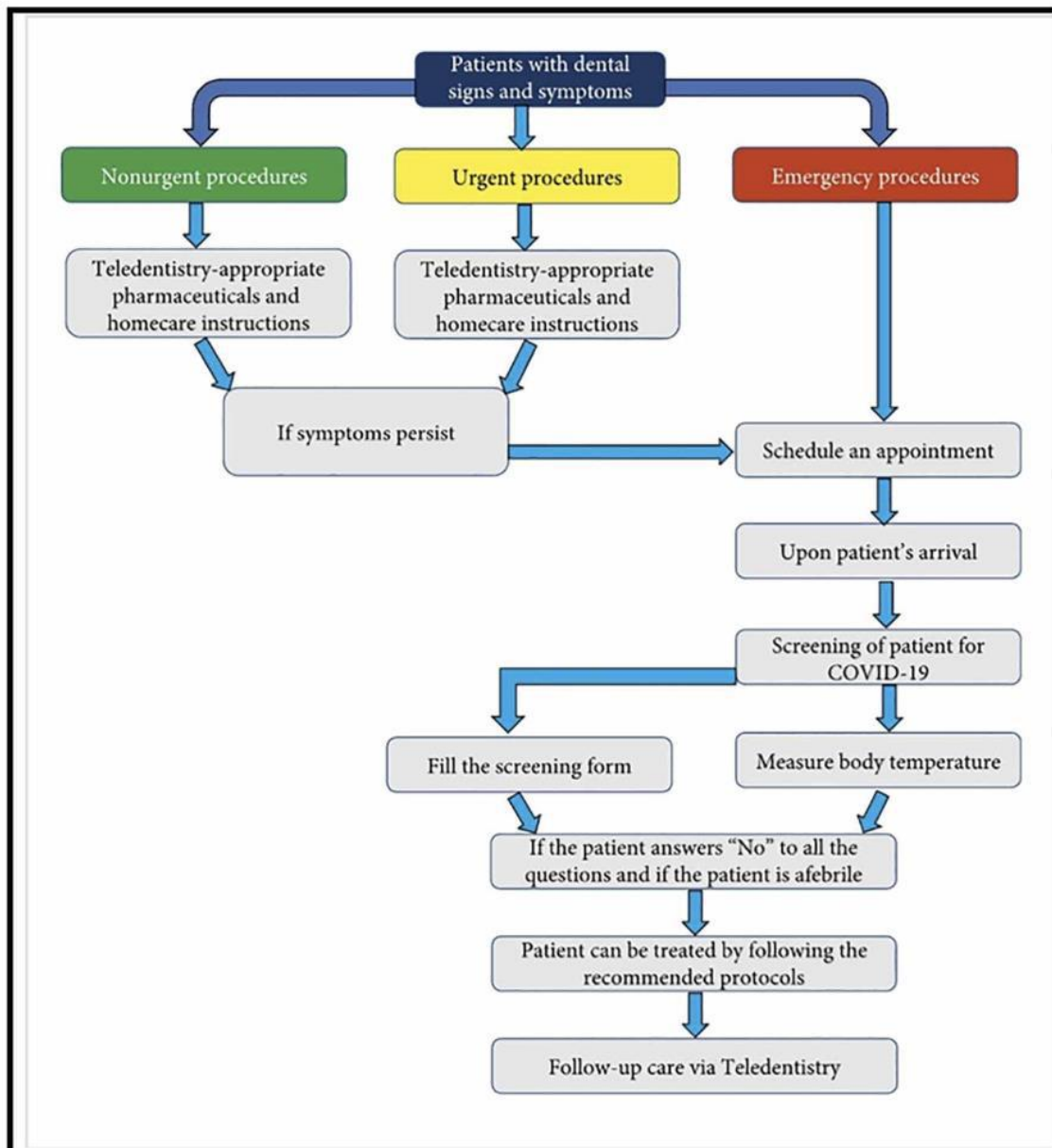


FIGURE II : Management of dental patient.¹¹

It is important to consider that an exhaustive intraoral examination should be performed in patients that were diagnosed with CoViD-19 in order to find any oral manifestation that might be related. Dentists should be aware of this symptom since they may encounter patients with taste abnormalities in the form of dysgeusia, ulcerations and others. This is particularly important because these symptoms may precede the onset of respiratory diagnostic

manifestations of the disease¹³. However, reporting of this symptom should be interpreted with caution which needs expertise in this field.

Conclusion:

This overview opines about dentist as health care worker shares an equal responsibility and has abilities which should be explored and make us able in dealing with this difficult situation, pandemic of CoViD 19.

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Conflicts of interest

There are no conflicts of interest

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