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Dental Care for Patients During the Covid-19 Outbreak: A Literature Review

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ABSTRACT

In the wake of the rising global prevalence of the novel 2019 coronavirus disease (COVID-19), there has been much concern over infection control in patients. Due to the characteristics of the dental job, the risk of cross-infection between patients and dental personnel increases. As a result, patients who need dental intervention should consider necessary and preventive care. Therefore, the aim of the present literature review was evaluation the Dental care for patients during the covid-19. It is recommended that patients be screened by phone or video calls as much as possible and that they be questioned about the symptoms of the COVID-19 together with their latest contacts with the COVID-19 cases or hospitalized patients or even regarding their travels to the hearts of the disease. Also, if possible, it is better to examine suspected or confirmed patients with the COVID-19 in airborne infection isolation (AIIRs) or negative-pressure rooms. In conclusion, the protocols presented in this study may be of great help for delivery of dental interventions during the COVID-19 pandemic.

1. Introduction

The first case of the novel 2019 coronavirus disease (COVID-2019) was reported in the city of Wuhan, Hubei Province, China, and it rapidly spread throughout the world.^[1] Regarding a new report released on May 16, 2020, by the World Health Organization (WHO), the COVID-2019 has unfortunately affected over 4,543,95 cases globally to this point.^[2, 3, 4] In the meantime, the International Committee on Taxonomy of Viruses (ICTV) has renamed this infection as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).^[5] Preliminary research studies in this respect have further revealed that the virus started from a local fish market and strangely from wild animals, e.g. bats, implying the likelihood of animal-to-human transmission. However, other investigations have demonstrated that the COVID-19 can be transmitted from human to human via droplets or direct contacts.^[6] The asymptomatic incubation period of the given virus has also been reported to be 2-14 days, although it has been up to 24 days in the related literature.^[7] Among the most common symptoms of the COVID-19, fever, chills, fatigue, shortness of breath (dyspnea), and dry coughs have been pointed out. Still, the least common manifestations have been sore throat, muscle pain, diarrhea, pink eye (conjunctivitis), loss of taste or smell, headache, skin rashes, or discoloration of fingers or toes.^[8] More than 80% of patients, called carriers, have also shown mild symptoms that may not lead to a growth in the number of undiagnosed cases.^[9] In hospitalized cases, aggravated conditions have given

rise to pneumonia, renal failure, and even death. Case fatality ratio (CFR) declared in the report by the WHO has been similarly estimated to be more than 4.5%.

A cough or sneezing by a carrier can spread SARS-CoV-2 within a radius of about 6 ft. So social distance is said to minimize the spread of the disease in the community.^[10] Another important route of transmission is to use equipment that has previously been in contact with an infected person.^[11] Also, studies have shown that SARS-CoV-2 can fecal-oral transmission.^[12] However, SARS-CoV-2 concentrated in salivary glands because it can bind to human angiotensin-converting enzyme two receptors. Therefore, COVID-19 is likely to be transmitted through salivary particles, aerosol and fomites, which can spread the disease to dental offices.^[12-14] Due to the connection of the dentist with the patient's mouth, this group can be carriers of the condition according to several published reports on the health care provided by SARS-CoV-2^[10, 15] and dental offices can be a resource for transmitting the virus.^[16] As a result, patients who need dental intervention should consider necessary and preventive care. Therefore, the aim of the present literature review was evaluation the Dental care for patients during the covid-19.

Dental Care Services during the nCOVID-19 outbreak

It is important to consider the following in this pandemic:

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- ❖ The incubation period for COVID-19 infection is between 1 and 14 days.^[17]
- ❖ Carrier is very vital in transmitting the disease.^[18]
- ❖ COVID-19 is likely to be transmitted through salivary particles, aerosol and fomites, which can spread the disease to dental offices.^[12-14]

- ❖ The virus is likely to remain in the saliva for up to 29 days, but the cause has not been determined.^[19]
- ❖ COVID-19 carriers may need urgent dental care.

Table 1 showed of patient review requiring dental care and figure1 showed dental patients screening; also figure2 showed categories of dental treatments.

Table1. Necessities of patient review requiring dental care.

Necessitates	Description
Screening	A patient should be carefully screened.
nCOVID-19 carrier	A patient should be considered as a carrier.
Laboratory tests	A person may be a carrier despite negative laboratory test results.
Minimally invasive procedures	Patient needs should be immediately identified and then managed through minimally invasive practices.
Dental treatment categories	Care services should be categorized according to patient needs.
Identification of required dental interventions	Treatment needs for each individual should be identified.
Personal protective equipment (PPE)	Protective clothing, including helmets, goggles, or other garments and equipment, should be designed to protect individuals from any injuries or infections.

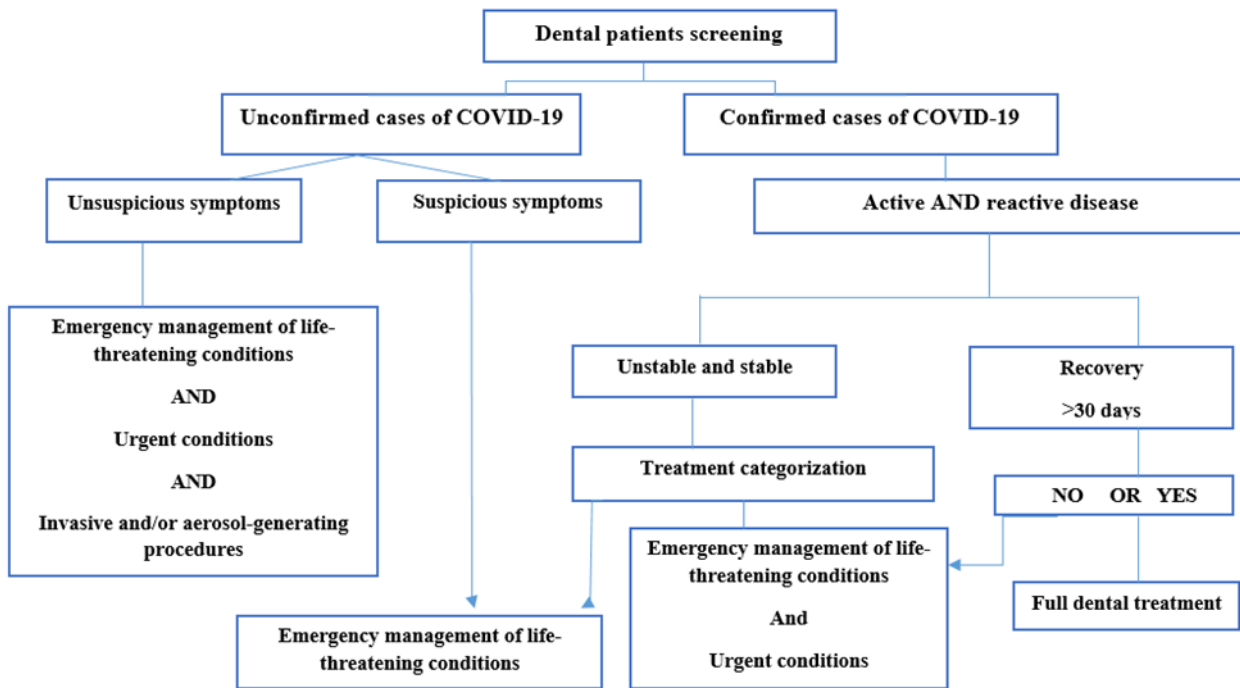


Figure 1. Dental patients screening of epidemic period of COVID-19.

It is recommended to screen patients by phone or video calls as much as possible and question them about the symptoms of the COVID-19 along with their latest contacts with COVID-19 cases or hospitalized patients or even regarding recent travels to the hearts of the disease.^[16, 17] It should be noted that in cases wherein the COVID-19 has been confirmed or recently improved, dental care services should be provided just after coordinating with physicians. Moreover, the date of illness and its current stage must be carefully evaluated.^[20]

Correspondingly, if possible, suspected or confirmed cases should be examined in airborne infection isolation (AIIRs) or negative-pressure rooms. Accordingly, patients can be divided into five groups. Then proper decisions can be made to treat them:^[21] (a) asymptomatic or healthy patients, (b) symptomatic and suspected patients, (c) stable patients with COVID-19, (d) unstable patients with COVID-19, and (e) approved patients with COVID-19 (Figure 1).

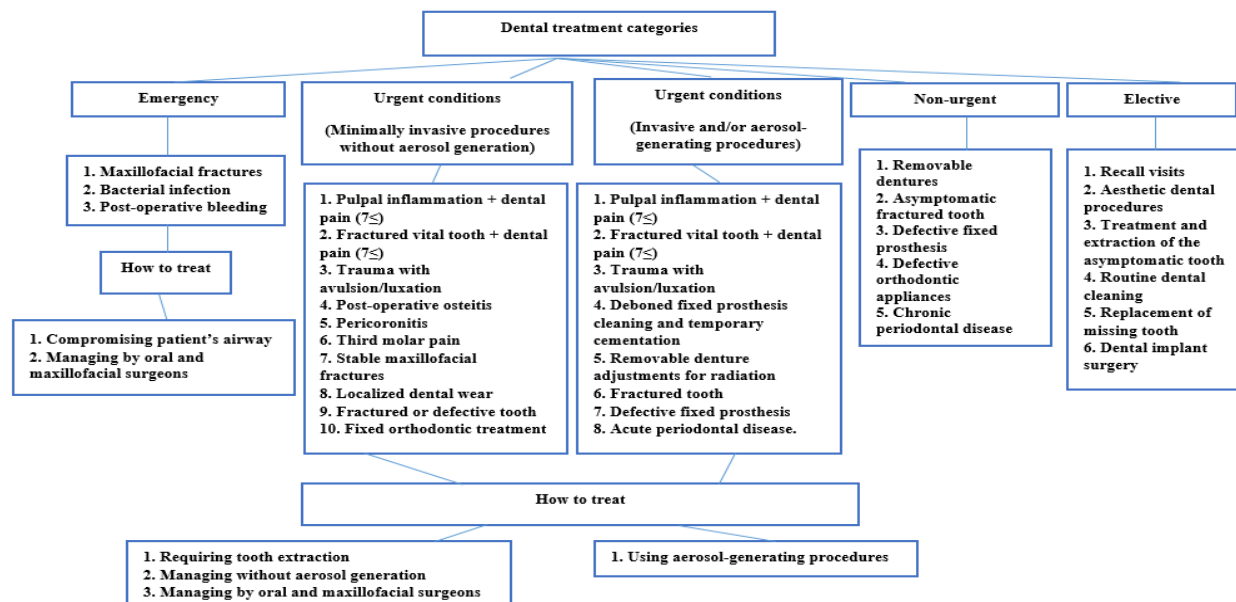


Figure 2. Dental treatment categories.

So far, the present research is being written; there are no global protocols or guidelines for dental services for COVID-19 cases. In general, there is no universal guideline for dental services in the event of an epidemic or/and pandemic. Almost all dental services have been discontinued in most countries since the outbreak. Given that there is no pre-existing guideline for COVID-19, the disease can be transmitted very quickly, even from dental health care facilities. Adherence to the following protocols is also strongly recommended by the dentist to prevent the transmission of colitis.^[10, 22, 23]

1. Personal protective equipment and hand cleanliness practices.
2. Personal protective equipment (PPE).
3. Preprocedural mouth rinse.
4. Single-Use (Disposable).
5. Panoramic radiography or cone-beam computed tomographic imaging.
6. Dental dam or rubber dam.
7. Sodium hypochlorite for root canal irrigation.
8. Disinfect inanimate surfaces.
9. Ultrasonic scaling instruments.
10. Airborne Infection Isolation.

Based on the review of the related literature, an Italian workflow developed by Peditto et al.^[20] aimed to manage dental care services had reflected on various threats facing dentists during the COVID-19 pandemic and how to measure levels of risk in patients and subsequently cope with them using a two-phase dental procedure (i.e. remote and face-to-face). Special preventive measures had been similarly taken for this purpose. No COVID-19 infection cases had been reported within two months of implementing this protocol among patients, dentists, and dental assistants. It seemed that the given workflow could be an effective solution for managing dental practices during the COVID-19 outbreak in both public and private centers. Besides, Ramírez-Mora et al.^[21] in a Perspectives on the Pandemic and its Incidence in Dentistry reported The guidelines adopted by governments and international organizations also apply to all dental associations to protect the health of the community and include the prevalence of COVID-19 infection to provide an effective vaccine or treatment. Benzian et al.^[22] highlighting safe aerosol-free emergent (SAFE) dentistry as a dental reaction to the COVID-19 had

demonstrated that the SAFE options and its related policies could lead to global access with no need to pay fees by patients.

Furthermore, an integrated payment plan had been designed for health care providers to make budgeting easier, repayable, and manageable during epidemics. Adaptation and adjustment of the concept are possible and encouraged, as long as the principle of avoiding aerosol-generation is maintained. And several studies of literature review^[16, 23, 24] have shown similar results to the present study. It is recommended that dentists review all reported protocols so that they can take the best approach to dental care.

2. Conclusion

The protocols presented in this study may be of great help for providing dental interventions during the COVID-19 pandemic and developing useful dental health care guidelines.

Conflict of Interest

The authors declared that there is no conflict of interest.

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