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Risk Assessment and Dental Considerations in COVID-19

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ABSTRACT

Today due to the pandemic caused by virus named novel corona virus from the large variant family of coronavirus world is facing a lot of consequences since almost last 2 years. In human being along with many organ systems this virus has greatly affected the oral cavity leading to a lot of problems. Many oral manifestations are found in the cavity like oral dryness, vesiculobullous lesions, aphthous like lesions, dysgeusia, and anosmia along with common features of COVID-19 like fever, cough, dyspnoea, malaise, weariness, and sputum/secretion. Thus, this disease (COVID-19) had a big influence on dentists, and they were found to have a higher transmission risk. After research and studies vaccines were introduced and till October 2021, healthcare personnel have delivered about 7 billion doses of COVID-19 immunisation. But still due to the continuous interaction with the aerosols and droplets during the treatment the dentist are at high risk of getting infected. Thus, it is necessary for the dentist to bind with some protocols and takes all infection control measures to prevent from infection. It includes time to time sanitization, wearing PPE, proper sterilisation of instruments, disinfection of working area after every patient, waste disposable management. Thus, dentist has a great role in preventing the spread of COVID-19.

Key words: *COVID-19, Corona virus, Dental considerations, Pandemic, Oral presentation of COVID-19*

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INTRODUCTION

In December 2019, a novel virus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection, also known as corona virus disease 2019 (COVID-19), was initially discovered in Wuhan, China, and was declared a pandemic by the World Health Organization a few months later. The oral manifestations of SARS-CoV-2 infection were attempted because of the virus's gastrointestinal mucosa tropism. COVID-19 (Severe Acute Respiratory Syndrome Coronavirus 2 is a new coronavirus infection caused by SARS-CoV-2, a single-chain RNA virus. The enzyme Angiotensin Converting Enzyme 2 (ACE2) helps viruses to adhere to one other. This enzyme can also be present in the mouth, allowing viruses to proliferate there [1].

Loss of taste *i.e.*, Dysgeusia was the earliest identified oral symptom of coronavirus illness (COVID-19) and is exhibited in a variety of ways. Other signs and symptoms include halitosis bulla ulcers, erosion, vesicle, pustule, fissured or de-papillated tongue, macule, papule, pigmentation, plaque, white patches, necrosis, petechial, haemorrhagic crust, swelling, erythema, and continuous bleeding. These diseases (COVID-19) had a big influence on dentists, and they were found to have a higher transmission risk. The transmission of this infectious disease is thought to be primarily due to aerosols and droplets. Without the interference of aerosols in regular dental practise, quality dental treatment may not be achievable. Dental associations and healthcare groups, on the other hand, have developed a plethora of dental considerations for dentists [2].

LITERATURE REVIEW

What is COVID-19?

COVID is abbreviation of Corona Virus Disease first identified in year 2019. It an infection caused by the large family of virus called as corona virus. It affects both human as well as animals from which 7 corona viruses can affect the human worldwide. Most common types are 229E, NL63, OC43, and HKU1. Initially it was called as Novel corona virus after which WHO officially named it as COVID-19 on 11th February 2020 and declared it as pandemic. It highly affects the respiratory system and cause severe respiratory disorders. The respiratory droplets formed when coughing and sneezing carry this virus quickly from one person to another, making it the

most infectious. It takes 2-14 days to incubate, with an average of 5 days. Cough, shortness of breath, sneezing, fever, and loss of taste are common symptoms, along with respiratory infections, pneumonia, and throat discomfort. Poor hygiene of the mouth, opportunistic infections, tension, immune suppression, vasodilation, and a chronic inflammatory reaction due to COVID-19 are the most important predisposing factors for the emergence of lesions of oral cavity in COVID-19 affected patients. The gold standard for diagnosis is the RRT-PCR *i.e.* reverse transcription polymerase chain reaction from a throat swab or nasopharyngeal swab. In comparison to the nasopharyngeal test, Reverse Transcriptase Polymerase Chain Reaction (RTPCR) from saliva has been shown to be a more sensitive test. Symptoms of pneumonia are shown by a CT scan all over the body. Symptoms, risk factors, and a chest x-ray can all be utilised to make the diagnosis. Because there was no medical therapy for the sickness at the time, the most crucial precautions from COVID-19 were hand washing with soap, sanitization, masking the mouth with a mask, and keeping a 1 metre distance. By October 2021, healthcare personnel have delivered about 7 billion doses of COVID-19 immunisation since the vaccine was first released in April 2020 [3].

Clinical manifestation of COVID-19

In just a few months, coronavirus disease 2019 has grown into a full-fledged global pandemic of epic proportions, affecting people of all ages and causing significant death, different sequelae in survivors, and severe socio-economic consequences. Patients with COVID-19 have been documented to have involvement of numerous body systems and organs, including the lungs, gastrointestinal tract, liver, blood vessels, heart, neurological system, and kidneys along with variety of oral lesions [4].

Fever, cough, dyspnoea, malaise, weariness, and sputum/ secretion were the most common symptoms. Other common symptoms were neurological symptoms, dermatological signs, anorexia, myalgia, sneezing, sore throat, rhinitis, goose bumps, headache, chest pain, and diarrhoea [5].

Oral presentation of COVID-19

Along with the other systems of the body the COVID-19 has its wide effects on the oral cavity leading to many severe problems. Dysgeusia (loss of taste) is firstly identified symptom which can last for months. Few oral signs have been recorded, although the relevance of saliva for virus transmission and the plausibility of salivary glands as a reservoir. The most common oral signs are xerostomia, vesiculobullous lesions, aphthous-like lesions, dysgeusia *i.e*., loss of taste, and anosmia. The lesions have been associated with aphthous stomatitis, herpetiform lesions, candidiasis, vasculitis, Kawasaki-like, EM-like, mucositis, and drug eruption, necrotizing periodontal disease, angina bullosa-like, angular cheilitis, atypical sweet syndrome, and Melkerson Rosenthal syndrome. In many of the cases, oral lesions are symptomatic. People who have experienced distress, despair, or tension as a consequence of the COVID-19 pandemic may develop Temporomandibular issues (TMD). Recently mucor mycosis is also to be found in many COVID-19 patients. Both genders had approximately comparable amounts of oral lesions (49% female and 51% male). Oral lesions were more extensive and severe in patients who were older and had a higher grade of COVID19 disease. The tongue (38%) was the most prevalent location of inclusion, followed by the labial mucosa (26%), and the palate (22%) [6].

DISCUSSION

Role of dentist in COVID-19

Because dental health care providers have close contact with the oral cavity, their role in preventing the spread of COVID-19 is critical. Before, all routine dental treatments and operations were halted in nations that have been exposed to COVID-19. Thus, stopping dental practises at some point during the pandemic could reduce the number of people who are harmed, but it would also exacerbate the suffering of those who need emergency dental care.

It will exacerbate the strain on hospital emergency rooms. As a response, throughout the pandemic's worldwide breakout, standardised standards for providing dental care are essential. Given the possibility of a future increase in COVID-19 disease cases, healthcare institutions must have a clear strategy in place to accommodate patients at peak output. The Assessment Checklist for Individuals, which comprises professional, nurses, and support staff requirements at peak capacity, contains the appointment of staff members accountable for the care of COVID-19 cases. Personal Protective Equipment (PPE) should be on the inventory list. Ensure that personnel who are concerned about contaminated patients receive proper training, including the use of Personal Protective Equipment (PPE). In the event that staff is unavailable, it is necessary to plan for the hiring of extra staff on short notice. In the event of an outbreak, a system for training rapid response personnel should be in place. The materials include stockpiles of hand hygiene products as well as personal protective equipment. It's time to figure out how much stock you'll need for the next few months. There should be a disinfecting facility available for reused goods. There should be a sufficient supply of anti-coronavirus disinfectants, adequate garbage disposal containers for potentially infectious waste, and proper servicing and repair facilities for defective equipment cases. Surgical gloves, disposable coveralls/gowns with hoods/waterproof linings, and disposable coveralls/gowns with hoods/waterproof linings must be changed often. The outer coverall/gown may be improvised and will need to be replaced after each patient. Shoe covers must also be worn. PPE is now required and would include the items listed as, Goggles and/or face shield should be worn, with a proper tissue seal, triple layer surgical mask, preferably N95 mask; the respirator is required for dental procedures, and FFP3–

Standard mask must be worn during treatment of COVID-19 positive.

During the treatment dentist should be with more precautions. Following measures should be taken; every patient who is not exhibiting any symptoms of COVID-19 is thoroughly screened, with each patient being considered a possible symptomless COVID-19 conveyer. Patients who have recently improved are also likely carriers for at least 30 days after a laboratory test has verified the improvement.

Recognizing the patient's high need and working on controlling it wherever even the tiniest intrusive operations are performed. Categorizing dental health care regimens according to the therapy that is urgently needed, as well as the risk and benefit associated with the therapy. Recognizing the necessary dental therapy for each patient, as well as the risks and benefits associated with that treatment plan. Using exposure precautions, including correct aerosol-generating methods and Personal Protective Equipment (PPE) for each procedure is prudent.

During the treatment

The patient should be classified as priority management of terminal diseases while receiving therapy. Only intrusive measures were used to deal with the emergency situation, and no aerosols were produced. Invasion and aerosol production procedures were used to deal with an urgent emergency. The procedures that are not required in emergency, procedures that are done on a voluntary basis should be postponed.

Considerations during management

Before the procedure, use a mouthwash containing 23% povidone-iodine for 15 seconds. This approach can help to reduce the viral burden in the patient's saliva. To minimize the risk of cross infection and the spread of microorganisms, disposable and one use instruments and devices should be used whenever possible. The use of a rubber dam is also recommended to reduce the spread of microorganisms and cross infection. Furthermore, the dental operation should be as painless as feasible. Aerosol generating techniques should be avoided whenever possible. In confirmed and suspected COVID-19 instances, Ibuprofen should not be used for pain therapy.

After the treatment proper management of biomedical waste is also necessary to cure spread. Biomedical Waste Management of waste suspected of containing or contaminated with COVID-19, particularly in ICUs, does not necessitate any additional precautions beyond those previously used to protect personnel from hazards encountered in the course of their daily work in the form of solid waste and wastewater management. All waste materials should be disposed of according to the hospital's national accreditation criteria.

CONCLUSION

Broadly speaking, numerous dental professionals have taken the necessary steps in the conflict against COVID-19, which is worthy of praise. Even though there is no patients manifest, Personal protection equipment and hand health and safety should be treated seriously in a dental office. Early detection of COVID-19 can avoid complications and improve treatment outcome in general. Following WHO guidelines on hand hygiene is an important measure to prevent the risk of infection. The dentist and auxiliary personnel should wear PPE and mask without respirator. The surfaces such as doors, door handles, patients waiting area, chairs, tables, dental chairs should be frequently disinfected. Only emergency and elective dental care should be provided during COVID-19 pandemic. Pre and post treatment mouth rinse with Hydrogen peroxide 1%, povidine iodine 0.2% and chlorhexidine are effective against COVID-19. Intra oral radiographs should be avoided and to be substituted by extra oral radiographs. In a nut shell the dental practitioners should have appropriate knowledge, attitude and practices regarding COVID-19 infection.

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