ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at:www.ijdsir.com

Volume – 4, Issue – 5, October - 2021, Page No. : 72 - 76

Yield of covid-19 screening prior to elective procedures in pediatric dentistry in Govt. Dental College Srinagar: A retrospective study

[1]Dr. Mohamad Arshid Khanda, M.D.S., Registrar in Department of Pedodontics and preventive Dentistry, Govt. Dental College and Hospital, Srinagar

[2]Dr. Nazia Lone, M.D.S. Professor and H.O.D., Department of Pedodontics and Preventive Dentistry Govt. Dental College and Hospital, Srinagar

[3]Dr. Mohsin Sidiq, Lecturer in Department of Pedodontics and preventive Dentistry, Govt. Dental College and Hospital, Srinagar

Corresponding Author: Dr. Mohamad Arshid Khanday, M.D.S., Registrar in Department of Pedodontics and preventive Dentistry, Govt. Dental College and Hospital Srinagar

Citation of this Article: Dr. Mohamad Arshid Khanday, Dr. Nazia Lone, Dr. Mohsin Sidiq, "Yield of covid-19 screening prior to elective procedures in pediatric dentistry in Govt. Dental College, Srinagar : A retrospective study", IJDSIR- October - 2021, Vol. – 4, Issue - 5, P. No.72 – 76.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: COVID-19 affects people of all ages. Children are typically asymptomatic but contagious. Surgical procedures that generate aerosols are considered high risk for transmission e. Predental procedural screening has not been universally adopted in dentistry hence the goal of this study was to assess the yield of screening asymptomatic pediatric patients prior to a dental procedure.

Methodology: The goal of this study is to assess the yield of screening asymptomatic pediatric patients prior to a dental procedure. We revived the charts of children aged children age less than 14 years scheduled for outpatient elective procedures between06/15/20 and 11/15/20. All patients underwent a screening test to rule out signs/symptoms of COVID-19 infection. Only asymptomatic patients were evaluated for the presence of SARS-Cov-19 using RT-PCR of nasopharyngeal swab sample fluid.

Results: A total of 270 children were evaluated for COVID-19. Seven (2.5%) children had a positive test. Among these, the age range was 4-12 years. Chart review shows that these eight cases were recon acted and the parents/guardians confirmed the absence of signs/symptoms consistent with COVID-19 and the exposure to known or suspected COVID-19 individuals.

Conclusion: Though the yield of testing is low, the systematic evaluation of asymptomatic pediatric dental

patients results in the identification of COVID-19 carriers. This allows the adjustment of the treatment plan with the goal of minimizing the risk of infection of dental providers and the spreading of the disease.

Keywords: COVID-19, dental practice**,** preoperative screening, RTPCR

Introduction

COVID-19 affects people of all ages. Children are typically asymptomatic but contagious. Surgical procedures that generate aerosols are considered high risk for transmission. The CDC(centres for disease control and prevention) recommends screening of all asymptomatic patients prior to any medical procedure. Predental procedural screening has not been universally adopted in dentistry and it's not explicitly recommended by the CDC. Children who are infected with SARS-CoV-2 have increased risk of postoperative complications and mortality. In addition children with undetected COVID-19 virus could potentially shed virus thus placing hospital workers and other children at risk, particularly during intubation and other aerosolizing procedures. Furthermore, if such patients are not isolated, they may infect other hospitalized patients, of whom many are prone to developing severe COVID-19.[1]Oral health is a pivotal sign of overall health, well-being, and quality of life. With the emergence of COVID-19 pandemic caused by the severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), insights into the relationship between SARS-CoV-2 and oral diseases are urgently needed to elucidate the oral manifestations of SARS-CoV-2[2]. The common symptoms that patients report to the dental office even at the presymptomatic stage are ageusia (loss of taste), non-specific anosmia (loss of smell—not associated with rhinitis), and hypo salivation. Few studies also report unexplained ulcers in the oral cavity, desquamative gingivitis, herpetiform ulcers on attached gingiva, and blisters/irregular ulcers on the tongue's dorsal surface enlargement of submandibular glands, and cervical lymph node enlargement. Dental surgeons should abide by the prevalent precautionary guidelines. They are at very high risk due to their close contact with patients and exposure to saliva and blood during treatment.[3,4] The goal of this study was to assess the yield of screening asymptomatic pediatric patients prior to a dental procedure scheduled for outpatient elective procedures.

Methodology

The goal of this study was to assess the yield of screening asymptomatic pediatric patients prior to a dental procedure. We revived the charts of children aged less than 14 years scheduled for outpatient elective procedures between06/15/20 and 11/15/20. All patients underwent a screening test to rule out signs/symptoms of COVID-19 infection. Only asymptomatic children were evaluated for the presence of SARS-Cov-19 using RT-PCR of nasopharyngeal swab sample fluid. Data were extracted on patient's demographics and clinical characteristics, recent exposure history andRT-PCR test.

SARS-CoV-2 RNA detection in nasopharyngeal specimens was performed using RT-PCR assays targeted at the viral envelope i.e; RNA-dependent RNA polymerase and quality controlled protocols. A positive screening result for detection of COVID-19 was defined a positive RT-PCR result. In these cases dental treatment was postponed when possible or, in cases of emergency, additional personal protection equipment and other precautionary measures were taken to prevent nosocomial spread. In patients who were negative at history taking and preoperative screening, use of standard personal protection equipment was considered sufficient.

Results

A total of 270 children were evaluated for COVID-19. Seven (2.5%) children had a positive test. Among these,

the age range was 4-12 years. Chart review shows that these eight cases were recontacted and the parents/guardians confirmed the absence of signs/symptoms consistent with COVID-19 and the exposure to known or suspected COVID-19 individuals. All cases were safely rescheduled for future treatment.

Discussion

This is the first study to determine the yield of screening for COVID-19 using RT-PCR in asymptomatic patients before emergency dental treatment in kashmiri children. Preoperative screening prior to dental treatment by RT-PCR confirmed SARS-CoV-2 infection in 2.5% of patients. To confirm SARS-CoV-2 infection the other studies have also investigated the use of RT-PCR as a screening method in asymptomatic patients. Data from both previous studies confirm the association between RT-PCR in asymptomatic patients and number of COVID-19 related hospital admissions.[5]

WHO classified COVID-19 symptoms into three broad classes. The most common symptoms are fever, dry cough, and tiredness. Less common symptoms are body aches and pain, sore throat, diarrhea, conjunctivitis, headache, loss of taste or smell, a rash on the skin, or discoloration of fingers and toes. The severe symptoms are difficulty in breathing or shortness of breath, chest pain or pressure, and loss of speech or movement. Clinical symptoms vary from totally asymptomatic to having mild flu-like symptoms to severe respiratory illness.[6] The symptoms are more profound in individuals with comorbidities like diabetes, hypertension, and ischemic heart disease. The common symptoms that patients report to the dental office even at the presymptomatic stage are ageusia (loss of taste), non-specific anosmia (loss of smell—not associated with rhinitis), and hypo salivation. Few reports state that along with unexplained ulcers in the oral cavity, desquamative gingivitis, herpetiform ulcers on attached gingiva, blisters/irregular ulcers on the tongue's dorsal surface, enlargement of submandibular glands, and cervical lymph node enlargement. These oral manifestations may be associated with an erythematous rash on the face or viral enanthema. Dysgeusia or ageusis and anosmia is found to be common in COVID-19 patients, and the range varies from 5.6%, 88.8%of patients. [7,8]

Although this yield of 2.5 % may seem less but even a low or small number of undetected cases could have substantial consequences. Additionally, asymptomatic patients with SARS-CoV-2 could be shedders of the virus, especially during aerosol generating procedures, thereby placing other patients and hospital workers at risk of SARS-CoV-2 infection. During aerosol generating procedures such as pulpectomy and restorations the risk of transmission is increased and by avoiding introduction of COVID-19 positive patients into the hospital, preoperative screening benefits dental care in preventing nosocomial spread and reducing the use of scarce personal protective equipment.[9]

COVID-19 pandemic leads to the complete closure of almost all dental practices throughout the world except for managing dental emergencies, which are potentially life-threatening due to airway obstruction, continuous tissue bleeding, trauma, facial bone fractures, and severe pain not manageable by medications alone. With the ease in lockdown, dental practices across the countries are opening up but with many changes in the way the treatment proceeds. These changes are especially necessary as the infection usually spreads through respiratory droplets or fomites, and a very high viral load is found in the oral and nasal cavity of the infected patients.[10] The virus has been found in saliva in the early stages of COVID-19 patients. The dental surgeons/health care workers must be aware of this as they are at an

increased risk of getting infected. Besides the very high viral load in respiratory droplets and saliva, the closed working environment and use of various instruments like high and low-speed turbines, ultrasonic scalers/piezoelectric instruments, 3-way syringes, dental intraoral X-rays, etc., also put the dental surgeons and health care workers at high risk of getting infected. Not only the saliva, various oral secretions, and blood may aerosolize because of inadvertent coughing by the patient or during the treatment procedure leading to cross-contamination. Thus, the aerosols may persist in the clinic environment for approximately 03 hrs, imposes an additional infection source.[11]

Patients should be told their responses will be kept confidential and will be reviewed by a practice clinician who will provide guidance regarding any adjustments to the patient's scheduled appointment.

- If patients answer "yes" to any of the questions, guidance is included on what actions to take. Here are some of the screening questions included in the script: Have you or anyone in your household had any of the following symptoms in the last 21 days: sore throat, cough, chills, body aches for unknown reasons, shortness of breath for unknown reasons, loss of smell, loss of taste, fever at or greater than 100 degrees Fahrenheit?
- Have you or anyone in your household been tested for COVID-19?
- Have you or anyone in your household visited or received treatment in a hospital, nursing home, long-term care, or other health care facility in the past 30 days?
- Are you or anyone in your household a health care provider or emergency responder?
- Have you or anyone in your household cared for an individual who is in quarantine or is a presumptive positive or has tested positive for COVID-19?
- Do you have any reason to believe you or anyone in your household has been exposed to or acquired COVID-19?
- To the best of your knowledge have you been in close proximity to any individual who tested positive for COVID-19 or any travel history?

If patient answers "yes" to any question, their responses should be reviewed by a designated medical leader to assess whether the patient can keep the scheduled appointment. Patients will be contacted again after decision-making.

It is recommended that every patient should be considered potentially infectious, and proper personnel protection measures should be taken.For appointments that do not result in aerosols and need examination only, a dentist should wear a triple layer surgical mask and protective eyewear/face shield. For high-risk and very high-risk procedures, wear N95 face masks, protective eyewear/face shields, and double gloving along with coverall. When examining patients with moderate risk, the treating doctor will require all PPE's as high risk except that the coveralls can be substituted with surgical gowns.

Minimally invasive procedures, atraumatic restorative techniques (ART) should be used for restorations. Aerosol-generating procedures should be avoided/reduced to a minimum. It should always be kept in mind that SARS-CoV-2 may spread through aerosols produced during various dental procedures. If the aerosol-generating procedure is required to be performed, rubber dam use is recommended along with high volume extra oral suction to reduce aerosols or splatter produced during the procedure.7 That patient should be the last patient for

the day to prevent cross-contamination and further infection. After the completion of the procedure, proper disinfection of the surgery setup is to be done. Use of face shields and protective goggles are essential in aerosol-generating procedures because saliva is considered as a route of transmission. It should be noted that if a surgical mask and a face shield is not available, do not perform any aerosol-generating. To decrease the viral load in the oral cavity, pre-examination mouth rinse with 0.2% povidone-iodine mouthwash or 1% hydrogen peroxide is recommended. Procedures that may cause gagging, coughing should be avoided or if necessary, performed cautiously.[4]

Conclusions

Though the yield of testing is low, the systematic evaluation of asymptomatic pediatric dental patients results in the identification of COVID-19 carriers. This allows the adjustment of the treatment plan with the goal of minimizing the risk of infection of dental providers and the spreading of the disease.

References

1. Pfefferbaum B, North CS. Mental health and the Covid-19 pandemic. New England Journal of Medicine. 2020 Apr 13.
2. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. Mitigate the effects of home confinement on children during the COVID-19 outbreak. The Lancet. 2020 Mar 21;395(10228):945-7.
3. Driscoll J, Lorek A, Kinnear E, Hutchinson A. Multi-agency safeguarding arrangements: overcoming the challenges of Covid-19 measures. Journal of Children's Services. 2020 Nov 2.
4. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC. Immediate psychological responses and associated factors during the initial stage of the 2019 corona virus disease (COVID-19) epidemic among the general population in China. International journal of environmental research and public health. 2020 Jan;17(5):1729.
5. Van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, *et al*. Aerosol and surface stability of sars-cov-2 as compared with sars-cov-1.NEnglJMed2020;382:1564-67.
6. Chaux-Bodard A-G, Deneuve S, Desoutter A. Oral manifestation of covid-19 as an inaugural symptom? J Oral Med Oral Surg2020;26:18.
7. Lan J, Ge J, Yu J, Shan S, Zhou H, Fan S, *et al*. Structure of the sars-cov-2 spike receptor-binding domain bound to the ace2receptor.Nature2020;581:215-20.
8. Corman VM, Landt O, Kaiser M, et al. Detection of 2019 novel corona virus (2019-nCoV) by real-time RT-PCR. Eurosurveillance.2020;25:2000045.
9. Qian G, Yang N, Ma AHY, Wang L, Li G, Chen X. COVID-19 transmission within a family cluster by presymptomatic carriers in China. ClinInfect Dis. 2020; ciaa 316:1–2.
10. Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of corona viruses on inanimate surfaces and their inactivation with biocidal agents. J Hosp Infect 2020;104:246-51.
11. Lechien JR, Chiesa-Estomba CM, De Siati DR, Horoi M, Le Bon SD, Rodriguez A, et al. Olfactory and gustatory dysfunctions as a clinical presentation of mild-to-moderate forms of the corona virus disease (covid-19): A multicentereuropean study. Eur Arch Otorhinolaryngol2020;277:2251-61.