

THE IMPACT OF CORONA VIRUS DISEASES 2019 ON THE CLINICAL PRACTICE OF ENDODONTISTS ACROSS THE UDAIPUR DISTRICT IN RAJASTHAN: A CROSS-SECTIONAL SURVEY

Dental Science

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ABSTRACT

Introduction: There was an outbreak of coronavirus disease 2019 (COVID-19) in late December 2019. The World Health Organization (WHO) declared a public health emergency of international concern over this pandemic outbreak on January 30, 2020. Since then, the number of cases and confirmed deaths has increased globally, as indicated by the weekly operational update COVID-19 provided by WHO. The COVID-19 disease is caused by the novel coronavirus severe acute respiratory syndrome- associated coronavirus 2 (SARS-CoV-2, formerly known as CoV-19). Endodontists are in a tough situation because most of the conservative and endodontic procedures generate large amount of aerosols while operating due to use the of high speed airtors and sometimes even ultrasonics. This survey investigated the effect of novel coronavirus COVID 19 on the clinical practice of endodontics in the Udaipur with the objective of evaluating the impact on clinical activities, patient screening, infection control measurements, potential transmission modes, preventive clinical protocols, as well as psychological concerns. **Materials and Methods:** Total of 155 participants of which 85 men and 70 women from Udaipur districts participated in the survey. It focuses to obtain a deep insight on how clinicians managed the endodontic practice in Udaipur district to serve the patients in all possible ways.

KEYWORDS

Endodontists, COVID- 19, SARS CoV-2, Aerosols, RT PCR, N95 respirator face mask, Survey, PPE

INTRODUCTION

COVID-19 was declared a public health emergency by WHO of international concern over this pandemic outbreak on January 30, 2020. Since January 2020 the number of cases and deaths rates has increased globally.¹

The COVID-19 disease is caused by the novel coronavirus severe acute respiratory syndrome- associated coronavirus 2 (SARS-CoV-2, formerly known as CoV-19). The most commonly reported routes of SARS-CoV-2 transmission are inhalation or direct inoculation. In addition, the direct inoculation of SARS-CoV-2 infected particles occurs by touching surfaces contaminated with infected respiratory droplets as transmission via an inanimate vector.²

Because of the dual risk of high aerosol-generating procedures in dentistry as well as droplet-borne SARS-CoV-2, in both symptomatic and asymptomatic individuals, the response and protocols of various dentists to curb the clinic-associated nosocomial transmission of SARS-CoV-2 varied at a large scale.³

Most of the conservative and endodontic procedures generate large amount of aerosols while operating due to use the of high speed airtors and sometimes even ultrasonics. As the chances to encounter patients suspected/confirmed with SARS-CoV-2, irrespective of whether they are symptomatic or not are high, clinicians had to act diligently to provide care and at the same time prevent nosocomial spread of the infection to both themselves as well as other patients³.

Therefore adoption of special measures to screen the patients, enhanced infection control protocols and following of specific dental treatment recommendations were formulated.⁴

This survey focuses on all the above mentioned parameters to obtain a deep insight on how clinicians managed the endodontic practice in Udaipur district to serve the patients in all possible ways while following all necessary guidelines.

OBJECTIVE

The aim of this cross sectional study was to investigate the effect of novel coronavirus (COVID-19) pandemic on the clinical practice of

endodontics in Udaipur with the objective of evaluating the impact on clinical activities, patient screening, infection control measurements, potential transmission modes, preventive clinical protocols as well as psychological concerns.

MATERIALS AND METHODS

A closed ended objective questionnaire survey was conducted amongst endodontists in Udaipur.

The survey consisted of 14 questions regarding the COVID-19 pandemic impact in the clinical practice of endodontists.

Questionnaire

- Q1. How soon have you returned to your dental practice?
 - a) After 3 months
 - b) After 6 months
 - c) After 9 months
 - d) Dental Office not closed
- Q2. Has the COVID-19 pandemic affected the number of patients in your practice when compared with the same time a year ago?
 - a) No effect
 - b) Decrease
 - c) Increase
- Q3. Are you taking part in endodontic care in front-line treatment of dental patients?
 - a) Yes
 - b) No
- Q4. What do you classify as an emergency? More than one option can be selected
 - a) Swelling
 - b) Trauma
 - c) Pain
 - d) Postoperative complication
 - e) Loss of crown or temporary filling
- Q5. Which best describe your current patient COVID-19 screening techniques? More than one option can be selected.
 - a) Written questionnaire
 - b) Oral questions

- c) Taking patient body temperature
d) RT-PCR
e) Chest x-ray

Q6. Which of the following do you identify as a positive response in your current patient screening techniques? More than one option can be selected.

- a) Body temperature higher than 100°F (38°C)
b) Cough
c) Sore throat
d) Shortness of breath
e) Flu-like symptoms
f) Muscle pain
g) Red or painful eyes, itching, or scratchy eyes
h) Vomiting, diarrhea, stomach pain
i) Loss of smell, Runny nose
j) Pulse oximeter below
k) Travel history

Q7. Are patients cooperative with added screening measures?

- a) Yes
b) No

Q8. Which of the following best describe the special measures you are now taking beyond regular PPE? More than one option can be selected.

- a) N95 respirator face mask
b) Face shield
c) Protective suit
d) Head cover
e) Shoe covers
f) Oral aerosol vacuum
g) Plexiglass aerosol shield for microscope
h) Cold fogging
i) Negative pressure operatory for treating COVID-19
j) Air purifying unit 49

Q9. Are you concerned about contracting or spreading SARS-CoV 2?

- a) Yes
b) No

Q10. Do you believe the rubber dam reduces the chance of COVID-19 cross infection from routine endodontic procedure?

- a) Yes
b) No

Q11. Are you worried about the effect of COVID-19 on your practice of endodontics?

- a) Yes
b) No

If yes then what is the reason behind your worries about the effect of Covid 19?

- I will become infected
My family will become infected
My staff will become infected
My patients will become infected

Q12. In what phase of COVID-19 recovery is your district?

- a) Unlock Phase
b) Unlock Phase 2
c) Unlock Phase 3
d) Unlock Phase 4
e) Other

Q13. Are staff worried about chronic effects of COVID-19?

- a) Yes
b) No

Q14. Please rate the order of importance of the following protection measures against COVID-19.

- a) N95 respirator face mask, hand wash, hand sanitizer
b) Hand wash, hand sanitizer, N95 respirator, face mask
c) Hand sanitizer, N95 respirator face mask, hand wash
d) Hand sanitizer, hand wash, N95 respirator, face mask
e) Hand wash, N95 respirator face mask, hand sanitizer
f) N95 respirator face mask, hand sanitizer, hand wash

RESULTS

Total of 155 participants from Udaipur districts participated in the survey. Despite efforts through the survey design to prevent skipping questions, some respondents did not answer all the questions. A total of 85 men and 70 women participated in this survey. A total of 40 respondents had practiced for more than 10 years. All participants were endodontists (155, 100%).

As of January 2021, 104/155 participants (67.10 %) had returned to their practice after 3 months, 16/155 (10.32%), after 6 months. Only 35/155 (22.58%) had not closed their dental practice.

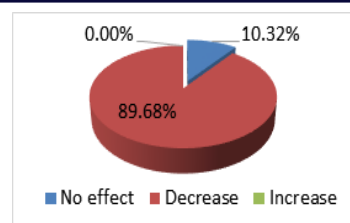


Fig 1

As per fig no. 1 139/155(89.68%) Participants reported that the number of patients decreased compared with the same time a year ago. In comparison, only 16/155 (10.32%) reported no effect or an increase in the number of patients.

Most endodontists took part in endodontic care in the front-line treatment of dental patients (133/155, 85.81%). They acknowledged trauma (93/155, 60%) followed by swelling (90/155, 58.06%), postoperative complication (77/155, 49.68%) and pain (57/155, 36.77%) to be emergencies. Forty one percent of the participants reported all of the above emergencies (65/155, 41.94%).

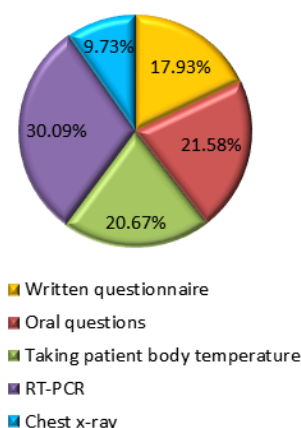


Fig no 2

As per fig no 2 the participants best described their current patient COVID-19 screening techniques as reported using RT-PCR for COVID-19 screening (99/155, 63.87%), Oral questions 71/155 (45.82), taking body temperature (68/155, 43.87), written questions (59/155, 38.06). Respondent reported having requested chest x-ray (32/155, 32.66) for COVID-19 screening in dental practice.

Most of them identified body temperature 100°F(115/155, 74.15%), pulse oximeter below 90% (101/155, 65.16%), loss of smell, runny nose(96/155, 64.94%), shortness of breath (92/155, 59.35%), sore throat (75/155, 48.39%), cough (71/155, 45.81%), flu-like symptoms (65/155, 41.94%), travel history (58/155, 37.42%), as well as vomiting, diarrhea, and stomach pain (15/155, 9.68%), red or painful itching eye (10/155, 6.45%) to be a positive response in their current patient screening technique. 82/155(52.90%) of the participants reported that the patient were cooperative and (73/155, 43.10%)

As per fig no. 3 in addition to the regular PPE, 100% of the participants reported having taken special protective measures for routine root canal therapy, with the most common ones being the N95 respirator face mask (153/155, 98.71%), face shield (142/155, 91.61%), and head cover (88/155, 56.77%). In addition, some respondents (49/155, 31.61%) reported implementing an air-purifying unit in their operatory.

Most participants agreed at some level to be concerned with contracting/spreading the COVID-19 virus. Rubber dam isolation was recognized by the majority of the participants at some level to reduce the chance of COVID-19 cross infection from routine endodontic procedures.

Ninety nine participants (99/155, 63.87%) reported being worried about the effect of COVID-19 on their practice.

Most of the respondents agreed at some level that most of their staff worry about the chronic effects of COVID-19. The great majority of respondents ranked the order of most to least important protection measures against COVID-19 as a hand wash, and hand sanitizer, N95 respirator and face mask (42/155, 37.10%).

Our results indicated no statistically significant differences in concern about COVID-19 infection related to gender, years of experience, type of practice, location, nature of the practice, and practicing district.

DISCUSSION

Coronavirus disease 2019 (COVID-19), the highly contagious viral illness has had a catastrophic effect on the world's demographics resulting in more than 3.8 million deaths worldwide, emerging as the most consequential global health crisis since the era of the influenza pandemic of 1918. After the first case was reported in Wuhan, Hubei Province, China, in late December 2019 rapidly disseminated across the world in a very short span of time, compelling the World Health Organization (WHO) to declare it as a global pandemic on March 11, 2020. It has also resulted in the loss of livelihoods due to prolonged shutdowns. Even though substantial progress in clinical research has led to a better understanding of SARS-CoV-2 and the management of COVID-19, limiting the continuing spread of this virus and its variants has become an issue of increasing concern.¹

Endodontists who resumed their activities at some level within 3 months and few in 6 months as well as those who did not discontinued their practices shared that they were afraid of being infected, transmitting infection from their dental practice to their families, staff becoming infected, as well as patient cross infection and had no differences in worries about COVID-19 infection related to gender, years of experience, type of practice, location, nature of the practice, and practicing district.⁶

The number of patients decreased compared with the same time a year ago and most of the endodontists acknowledged only endodontic emergencies such as trauma followed by swelling, postoperative complication and pain.⁷

The current patient COVID-19 screening techniques as reported was RT-PCR for COVID-19 screening, Oral questions, taking body temperature, written questions. They reported having requested chest x-ray for COVID-19 screening in dental practice. There were more uncooperative patients for having screening test to be done before treatment.⁸

Endodontists are aware of the COVID-19 pandemic and are concerned about contracting and spreading the virus. Despite the conflict between their roles as health care providers most of them remain on duty providing front-line care for dental treatments.⁹

It demonstrated endodontist's knowledge and awareness of the need for patient screening measures for COVID-19 and special measures beyond regular PPE equipment. Almost every participants reported having taken special protective measures for routine root canal therapy, with the most common ones being the N95 respirator face mask followed by face shield and head cover. In addition, some respondents reported implementing an air-purifying unit in their operatory. Other protective measurements were also reported by the respondents.¹⁰

Rubber dam isolation was recognized by the majority of the participants at some level to reduce the chance of COVID-19 cross infection from routine endodontic procedures.¹¹

Besides the importance of imposing public health and infection control measures to prevent or decrease the transmission of COVID 19, the most crucial step to contain this global pandemic is by vaccination to prevent COVID 19 infection in communities across the world. Extraordinary efforts by clinical researchers worldwide during this pandemic have resulted in the development of novel vaccines.

It is important to point out that COVID-19 conditions can change rapidly, and endodontists must comply with the guidelines released by the WHO and dental association.

CONCLUSION

It is indicated that no differences in worries about COVID-19 infection related to gender, years of experience, type of practice, location, nature of the practice, and practicing district. Psychological distress, including the fear of becoming infected while treating a patient or passing the infection on to family is one of the most common fears shared among practitioners.

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