



The new normal in dentistry during pandemic (Covid-19) in and around Mumbai: A short survey study

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Abstract

Most dental procedures require close contact with the patient's oral cavity, saliva, blood, and respiratory tract secretions. Saliva is rich in COVID-19 viral load. Many patients who are asymptomatic may be carriers. So prior precaution is mandatory. Try to avoid non-emergency treatment. Use of rubber dam isolation minimises the risk of contamination. Use of PPE kit and rest of the precautionary measures increases the treatment cost which is again a challenge for both dentist and patient.

Keywords: PPE kit, covid 19, CBC, PCR, fumigation, Hypochlorite

Introduction

In the current COVID-19 pandemic, dentists, auxiliaries as well as patients undergoing dental procedures are at high risk of cross-infection. Most dental procedures require close contact with the patient's oral cavity, saliva, blood, and respiratory tract secretions. Saliva is rich in COVID-19 viral load. Many patients who are asymptomatic may be carriers. For this reason, it is suggested that all patients visiting a dental office must be treated with due precautions.

So we have taken an online survey in and around Mumbai, Maharashtra, India about how dentists are managing their current practice and what all procedures they are following. Total 250 forms collected from different branches of dental operators. Most of them are carrying out aerosol procedures under rubber dam isolation with proper PPE kit and precautions. This survey consists of hygiene, procedure and protocol with respect to dental procedures in dental office by dental operators.

According to this survey 75% dentists follow rubber dam isolation in aerosol procedure, and for non-aerosol its 50%. About 68% dentists follow pre-treatment diagnostic tests like CBC (Complete Blood Count), PCR (Polymerase Chain Reaction) and vital parameters with SpO₂ levels. After treatment all dental operators follow standard procedure for sterilization of dental office like fumigation, use of 1% hypochlorite spray or tablets forms of fumigation.

2. Material and Method

The survey study included 250 participants, data collected from online survey form in and around Mumbai, Maharashtra, India. All branches of dentistry were included in the survey. A structured custom-made questionnaire composed of fifteen questions was designed to assess the precautions, procedure and hygiene maintained by dentist in dental office.

Questions asked:

1. Are you a practicing dentist?

2. If yes then practicing as (any specialization)?
3. Which area, city, state do you practice?
4. How would you manage a root canal treatment patient in the current pandemic situation?
5. Are you comfortable with using rubber dam for posterior root canal treatment?
6. If using a rubber dam, which system do you follow?
7. Which technique do you follow while placing a rubber dam?
8. Will you use a rubber dam for second sitting of a root canal treatment or any other non-aerosol procedure?
9. Do you feel that the chances of contamination are lesser on using rubber dam?
10. What precautions will you take while carrying out dental procedures in this pandemic?
11. Will you perform single sitting root canal procedures in most of the cases due to current pandemic?
12. After completing any dental procedure how will you sterilize the dental office?
13. Will you prefer two separate rooms for donning and doffing in a dental office?
14. How many patients can you manage in 1 PPE suit?
15. Are you using air purifier in dental office?

The criterion for the study was formulated to make the study simple and clear.

Exclusion Criteria

- Dentists not willing to participate in study.
- Dentists who are not operating / functioning in current pandemic (COVID-19).
- No Hygienist included in study.

Inclusion Criteria

- All working dentists in current pandemic in and around

Mumbai.

- Willingness to participate in the survey.
- Dentists from all branches.

The eligible and willing dentists received the self-explanatory structured questionnaire in online format. Data was tabulated and analyzed using SPSS version 11.5 (SPSS 11.5 for windows). Analysis initially was performed with Chi-square test for frequency, precautions and methods, with the independent samples t-test used for assessing mean score differences along with Pearson's correlation coefficient.

3. Result

Total 250 forms received by dentists in and around Mumbai. In total of 250 dentists 43.7% were graduated with dental degree and 56.3% were post graduates. In this present survey 73% dentists use rubber dam isolation for aerosol procedures, 23% do not use any precautions, 4% dentists use rubber dam only in suspected cases. Nearly 55% dentists are not comfortable using rubber dam isolation, remaining 45% use different brands of rubber dam kit which are available in the market (Hygienic 32.8%, GDC 53.1%, Optradam 11.7%). There are different methods to apply rubber dam, in this survey we recorded that 40.6% dentists use dam first technique, 35.2% dentists use clamp 1st technique and 24.2% dentists use both clamp and dam together technique. Consideration regarding non-aerosol procedures 50.8% dentists use rubber dam and 49.2% dentists do not use rubber dam. According to the received data 76.6% dentists think that rubber dam isolation provides lesser chance of contamination whereas 19.5% have mixed thoughts over it and 3.9% consider that it is of no use. 80.5% dentists are finishing the work in single visit only if its manageable, 19.5% operators follow multiple visits wherever required.

When it comes to taking precautionary measures before or while operating the patient 67.2% dentists follow necessary guidelines like PPE kit, Blood tests, Vital parameters and SpO₂ levels of patients where 16.8% use only PPE kit and 12.8% use temperature check and SpO₂ levels. For sterilization 40.6% dentists use fumigation, 35.2% use hypochlorite spray, 20.3% use fumigation tablets and 3.9% use all methods mentioned above.

Many dentists have a smaller operating area, only 71.9% participants have separate room for donning and doffing whereas 25.8% mentioned that it is difficult to manage in smaller area. 41.4% of dentists use single PPE kit per patient and 58.6% use same PPE kit with proper sterilization for multiple cases. While doing the operatory procedure 63.6% dentists believed to use air-purifier, 36.4% dentists are in dilemma.

4. Discussion

In the current COVID-19 pandemic, Dentists, auxiliaries as well as patients undergoing dental procedures are at high risk of cross-infection. Most dental procedures require close contact with the patient's oral cavity, saliva, blood, and respiratory tract secretions. Saliva is rich in COVID-19 viral load. Many patients who are asymptomatic may be carriers. For this reason, it is suggested that all patients visiting a dental office must be treated with

due precautions.

Amongst dental procedures only emergency treatment should be initiated rather than esthetic or prosthetic. Dentist should follow proper guidelines given by health ministry of nation.

Use of rubber dam is mandatory for aerosol procedures because it might reduce the viral load while operating oral cavity. We have noticed that only 72.5% dentists are using rubber dam isolation in all procedures except extraction and 25.2% are using whenever its required or in suspected cases. (Chart 1).

Most of the dentists are not used to or not comfortable to work under rubber dam isolation. In the received data 54.2% dentists are comfortable with rubber dam whereas 45.8% struggle while working under rubber dam isolation. (Chart 2). Contamination of virus is more when operator is close to the oral cavity, most of the dental procedures deal with salivary contamination and blood which carries high frequency of viral load. Even after knowing this fact only 50.4% dentists agreed to use rubber dam in all dental procedures whereas 49.6% dentists use rubber dam only if its required or while doing aerosol procedures (Chart 3). While treating any patient, operator should take proper history with vital parameters. According to scientific studies we can see the changes in following blood tests - CBC, PCR.

Try avoid suspected patients because they might cause cross contamination or they can be asymptomatic carriers. In our survey we have noticed 67.2% dentists follow blood test evaluation, PPE kit administration, vital signs and SpO₂ levels of patients before operatory procedures, 16.4% uses PPE kit along with temperature check and 12.5% use only PPE kit. (Chart 4). Current pandemic has affected dental treatment planning as many of the dentists try to avoid multiple visits by patient like wish. We found 80.9% of dentists try to finish dental procedures in one visit whereas 18.9% dentists keep multiple visits which depends upon case to case. For sterilization after dental procedures, 41.7% dentists prefer to change PPE after single case and 58.3% dentists use same PPE kit for multiple cases with proper sanitization or disinfectant. (Chart 5). Fumigation is the primary protocol after all dental work at the end of the day. 40.9% dentists use fumigator, 35.6% use 1% Hypochlorite spray and 19.7% uses disinfectant tablets which are available in the market (Chart 6). HEPA filters with air purifiers are newly growing technique in dental operatory, it claims to filter 90% or more air.

Based on this we asked one question regarding air purifier in which we found 62.4% operators use air purifier and 37.6% claims that it is placebo. (Chart 7)

5. Conclusion

All dental procedures should be categorised between emergency and non-emergency basis. Try to avoid non-emergency treatment. Use of rubber dam isolation minimises the risk of contamination. Using PPE kit and rest of the precautionary measures increases the treatment cost which is again a challenge for both dentist and patient. Overall, dental field is now at high risk of cross-contamination, donning and doffing should be done under strict observation, daily disposal of used kit and dental aids is mandatory. Awareness is important in all dentists about the pandemic situation over economical load /pressure.

6. Financial support and sponsorship

Nil.

7. Conflicts of interest

There are no conflicts of interest.

8. Charts

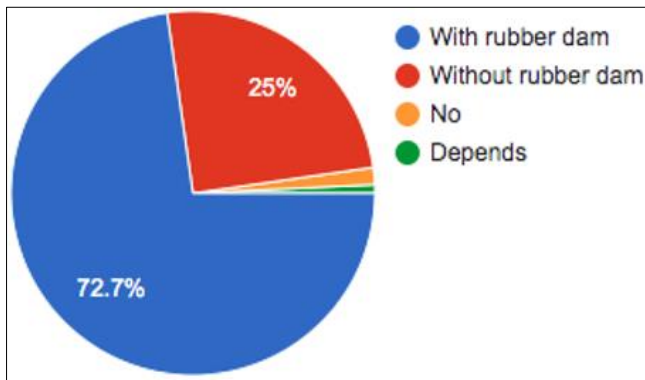


Fig 1: Use of rubber dam

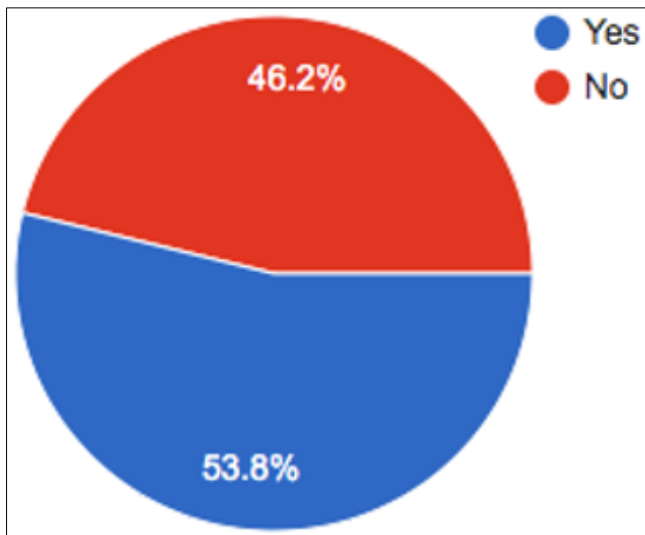


Fig 2: Comfortable while working under rubber dam

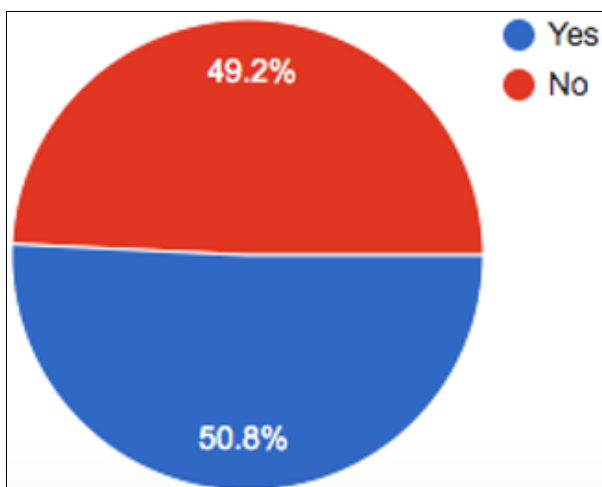


Fig 3: Use of rubber dam based on aerosol and non-aerosol treatment

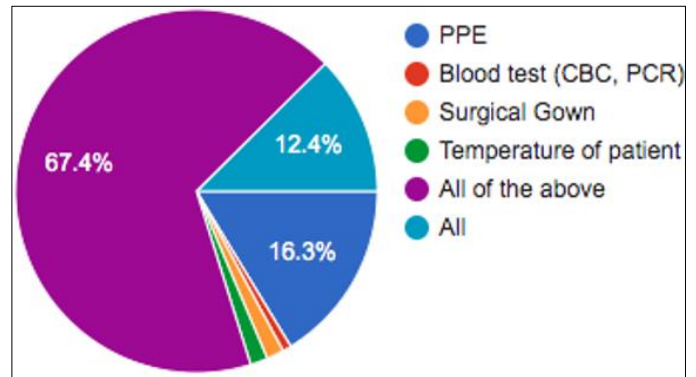


Fig 4: Precautions taken by dentists before procedures

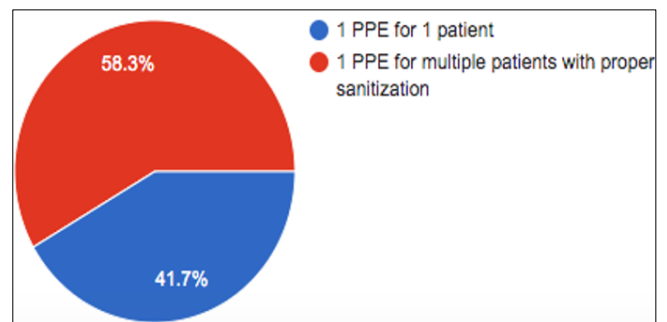


Fig 5: Use of PPE kit on patients

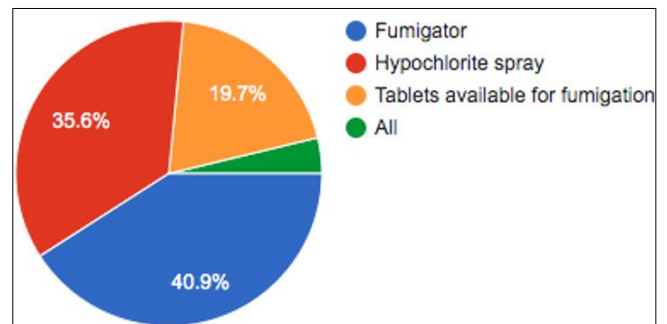


Fig 6: Comparison of use of fumigation

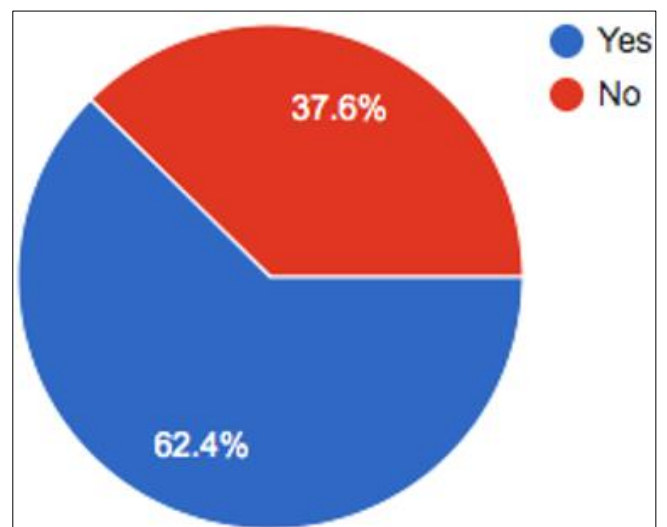


Fig 7: Use of Air-purifier

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