



Original Research

KAP Survey On Knowledge, Attitude And Practice of Cavity Disinfectants Among Dental Practitioners

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Abstract

Aim: This cross sectional study aims at assessing the knowledge, attitude and awareness on cavity disinfectants. The doctors were further addressed about the uses of cavity disinfectants.

Materials and Method: This survey will be conducted between the months of November to December 2018. A specially designed questionnaire consisting of 15 questions was used in the survey. The questionnaires were handed to 100 dental practitioners that were completely filled and returned.

Results: The participants are aware about the cavity disinfectants. The knowledge and practice of oral hygiene measures are good. Proper education about the importance of cavity disinfectants can improve the practice of better treatments that pave the way for cultivating these better treatments to the patients.

Conclusion: This study concludes that the knowledge, attitudes and awareness regarding cavity disinfectants is adequate. The participants are needed to be educated more and motivated to cultivate proper oral hygiene measures by initiating awareness programs.

Keywords: *Cavity disinfectants; Caries; Bacterial remnants; Survey.*

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INTRODUCTION

Long term success of restorative procedures is highly influenced by the bacterial remnants in the prepared cavity walls. Documented evidence of research reveals that in the presence of microleakage, the remnant bacteria in dormant state gets nutrients to multiply. This in turn causes post operative sensitivity, recurrent caries and pulpal irritation, eventually leading to failure of restorations [1].

Brännström and Nyborg insisted the importance of cavity disinfection based on a study in the year 1970. The need of antimicrobial agents for disinfecting the prepared cavity prior to placement of restoration was demonstrated [2,3]. Bacterial load in prepared cavity is inevitable when the indication is dental caries. Disinfection should be the norm for every case.

Various methods of caries excavation are currently in practice. Choosing only mechanical means could result in excessive removal of healthy dentin and at times result in pulp exposure [4,5]. Advancement in the techniques and instrumentation should be put to appropriate use. The caries excavation methods do not concentrate on elimination of the bacterial load and create a caries free cavity [6,7].

Realizing the importance of cavity disinfection few antimicrobial agents are being used. In spite of their efficacy, the practice is not widespread due to inadequate evidence of their influence on pulpal irritation and bond strength [8].

The concerns of various practitioners regarding the protocol for cavity disinfection should be identified. Every practitioner should be informed about the choice of antimicrobial agents specific to the restoration. Clinical trials and in vitro analysis should be performed to share the outcome with evidence. This paper gives knowledge on different disinfectant materials and techniques that have been reported to be used during cavity preparation and their efficacy as antimicrobial agents among practicing dentists.

MATERIALS AND METHODS

This survey will be conducted between the months of November to December 2018. A specially designed questionnaire consisting of 15 questions was used in the survey. The questionnaires were handed to 100 dental practitioners that were completely filled and returned.

Questionnaire

1. Have you heard about cavity disinfectants?
a. Yes b. No
2. Do you use cavity disinfectants in your regular clinical practices?
a. Yes b. No
3. Do you know what cavity disinfectants are available?
a. Yes b. No
4. Are they are useful in destroying bacteria?
a. Yes b. No
5. How much percentage of CHX is used as cavity disinfectants?
a.0.2% b.0.5% c.1% d.2%
6. CHX is effective against
a. Gram + b. Gram - c. Both
7. NaOCl has better

- a. Tissue solving action b. Bonding action c. Cleansing action d. Reducing action*
8. How much percentage of Naocl is used as cavity disinfectant?
a.5.25% b.2.35% c.1% d.6.3%
 9. Adverse effects of NaoCl when used as cavity disinfectants
a. Failure of restoration b. Pulpal inflammation c. Staining of teeth d. Tissue irritation
 10. Does NaOCl impose an effect on the bond strength?
a. Yes b. No
 11. Iodine can be used as a cavity disinfectant
a. Yes b. No
 12. EDTA can be used as cavity disinfectant
a. Yes b. No
 13. Iodine has an effect in destroying bacterial cell
a. Yes b. No
 14. Have you attended any lectures regarding cavity disinfectants?
a. Yes b. No
 15. Do you have any interest in attending lectures regarding cavity disinfectants?
a. Yes b. No

RESULTS

Table 1: Represents the awareness about cavity disinfectants. About 89% of the participants were aware about the cavity disinfectants and 76% of them were aware about the different types of cavity disinfectants while about 66% of them are using cavity disinfectants in their regular clinical practice.

| Questions | Aware of cavity disinfectants? | Use of disinfectant in clinical practice? | Aware of different types of disinfectants available? | Are they useful in killing bacterias? |
|-----------------------------|--------------------------------|---|--|---------------------------------------|
| Appropriate Answer | 89% | 66% | 76% | 82% |
| Inappropriate Answer | 11% | 34% | 24% | 18% |

Table 2: Represents the awareness of chlorhexidine cavity disinfectants. About 89% were right about the percentage of CHX that is used as a cavity disinfectant. 63% of them were aware about the type of bacteria that are most effectively killed by CHX.

| Questions | Percentage of chx used as cavity disinfectants? | Chx is effective. Which type of bacterias? |
|-----------------------------|---|--|
| Appropriate Answer | 89% | 63% |
| Inappropriate Answer | 11% | 37% |

Table 3: Represents the knowledge about NaOCl. About 53% of them knew that NaOCl can be used as cavity disinfectants. 77% of them were right that NaOCl has an effect on bond strength and only 45% of them were aware about the adverse effect of Naocl.

| Questions | Better property of Naocl ? | Percentage of Naocl used as cavity disinfectants? | Does Naocl have an effect on bond strength? | Adverse effects of Naocl as a cavity disinfectant? |
|-----------------------------|----------------------------|---|---|--|
| Appropriate Answer | 66% | 53% | 77% | 45% |
| Inappropriate Answer | 34% | 47% | 23% | 55% |

Table 4: Represents the knowledge, awareness about iodine and EDTA as a cavity disinfectants. 66% of the were aware about the fact that iodine can be used as a cavity disinfectant and 76% of them were aware about EDTA as a cavity disinfectants. 82% of them were strong with their decision that iodine has a better destroying ability against bacterial cell.

| Questions | Iodine used as a cavity disinfectant? | Does Iodine have an effect in destroying bacterial cells? | EDTA is a cavity disinfectant? |
|-----------------------------|---------------------------------------|---|--------------------------------|
| Appropriate Answer | 66% | 82% | 76% |
| Inappropriate Answer | 34% | 18% | 24% |

Table 5: Represents the practitioners interest towards cavity disinfectants. 34% of the participants had attended lectures regarding cavity disinfectants. 95% of them had an interest in attending lectures on cavity disinfectants' to gain more knowledge about cavity disinfectants.

| Questions | Attended any lectures regarding cavity disinfectants? | Interest towards cavity disinfectants? |
|-----------------------------|---|--|
| Appropriate Answer | 34% | 95% |
| Inappropriate Answer | 66% | 5% |

DISCUSSION

Chlorhexidine digluconate is a well known antimicrobial agent for oral microbes since 1960 [9]. It is a bisbiguanide with mild chelating property. 2% Chlorhexidine is used as root canal irrigant. It is found to be clinically effective in non vital root canals [10]. Chlorhexidine digluconate has been identified to have high antibacterial activity against both Gram-positive, especially *Streptococcus mutans*, and Gram-negative bacteria [11,12]. Chlorhexidine digluconate is a safe disinfectant to be used clinically when in contact with tooth or tissue [13,14]. In addition to bactericidal action, CHX has shown to be an effective hemostatic agent and stimulate dentin bridge formation [15]. Though staining of teeth with CHX has been reported, restricting the duration of contact can prevent brownish stains. Few clinical reports reveal untoward symptoms like contact dermatitis, desquamative gingivitis [16].

Sodium hypochlorite (NaOCl) is known for its excellent tissue-dissolving action and strong antimicrobial effectiveness [17,18]. Few authors have suggested the use of NaOCl at 5.25% since it can eliminate organisms like *S. aureus*, *C. albicans* [19]. However few researchers have contraindicated its use since it can cause pulpal irritation [20,21]. The effect of NaOCl on resin bonds has been reported. Some of them found this kind of procedure affects the hybrid layer and therefore results in reduction of bond strength and microleakage simultaneously [22]. Sufficient care is required to protect from its corrosive reaction. It is a strong oxidizer [23].

Apart from NaOCl and CHX iodine solutions, quaternary ammonium compounds, and benzalkonium chloride are being used for cavity disinfection [24-27]. The questionnaire survey reveals that majority of the respondents are aware about the benefits of cavity disinfection. However due to concerns of discoloration and influence on bonding of the restoration, the practice is not well established.

CONCLUSION

This study concludes that the knowledge, attitudes and awareness of cavity disinfectants among practicing dentists is adequate. Proper education about the importance of cavity disinfectants can improve the practice of better treatments and pave the way for cultivating these measures for future development. They showed interest towards gaining more knowledge about cavity disinfectant. Hence, an awareness program needs to be initiated to address this concern.

Conflict of Interests: Nil

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