

Knowledge and Awareness about Cryosurgery among Dental Practitioners

S. Aishwarya¹, Dr. Dhanraj², Dr. Sangeetha³

¹II year BDS, Saveetha Dental College and Hospitals, Poonamallee High Road, Chennai

²Head of the Department, Department of Prosthodontics, Saveetha Dental College

³Professor, Department of Prosthodontics, Saveetha Dental College

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Abstract: *Background:* Cryosurgery is typically used for tumors or precancerous lesions found on your skin. However, some tumors inside the body can be treated this way as well. Advances in cryosurgery technology have dramatically reduced the long-term side effects once associated with the treatment. So this technology must made aware among dentists for the wellness among the patients. *Aim:* The aim of this research is to find the knowledge about cryosurgery and its importance among dentists. *Objective:* The study is to establish the recent advances and awareness about cryosurgery among dentists. *Materials and Methods:* A cross sectional survey was conducted across chennai among the Dental practitioners regarding their awareness about the cryosurgery. The questionnaire was distributed to 100 Dental practitioners in an interview based method around the chennai city. All the questionnaire were kept anonymous. *Result:* On analysing the above data, 46% of dentists were aware about cryosurgery, out of which 96% were not practising, the main reason was due to increased costs and insulation, 92.3% dentists prefers cryosurgery and they are willing to be trained, 23.1% were aware about the complications associated with cryosurgery and 66.2% of dentists prefer to use cryosurgery for treatment of both tumours and for lesions in internal organs. *Conclusion:* The awareness about cryosurgery among Dental practitioners is comparatively less. But it needs to made aware as this plays very important role in treating lesions.

Keywords: cryosurgery, tumours, lesions

1. Introduction

Cryosurgery is a method of local destruction of tissues by freezing in situ “Cryosurgery” is derived from the Greek word “Kryos,” that is, frost, thus literally meaning frost surgery[1]. The cryosurgical site is characterized by two zones: a central zone of total coagulative necrosis and a peripheral zone characterized by varying degrees of cellular death and injury. The mechanisms by which acute, direct cellular death occurs in the central zone are quite well established. Both the involved mechanisms include intracellular ice crystal formation resulting in mechanical trauma, and cellular dehydration with associated osmotic damage. Subsequent cell death is mediated by ischemia and apoptosis[2]. Cryosurgery is a cost-effective, efficacious, and es- thetically acceptable modality of therapy for a wide variety of skin disorder[3]. Cryosurgery is widely used in the fields of dermatology, ophthalmology, ENT, neurosurgery and general surgery [1]. In the field of oral and maxillofacial surgery it is used to treat, cancer, premalignant lesions, mucous cysts and trigeminal neuralgias [3]. The mechanisms for cell destruction after cryosurgery are complex, involving a combination of direct and indirect effects [4]. This method has several advantages including bloodless treatment, a very low incidence of secondary infections and a relative lack of scars and pain [5]. Initially its use was limited to oral cavity and lips then expanded over benign skin growth like viral warts, skin tags, verrucae, seborrhoeic warts and solar kurtosis etc [6]. In cryosurgery, nothing is excised; rather, the lesion is frozen and the resultant necrotic tissue is allowed to slough spontaneously. Tissue death results from a combination of direct cellular effects, such as formation of ice crystals, cellular dehydration, protein denaturation and

disruption of cell membranes and from ischemic infarction resulting from failure of microcirculation. Vascular stasis enhances the direct lethal effect [7]. Cryosurgery has been recommended as a mode of treatment for a variety of benign and dysplastic intraoral lesions [8].

2. Materials and Methods

A cross sectional survey was conducted across chennai among the Dental practitioners regarding their awareness about the cryosurgery. The questionnaire was distributed to 100 Dental practitioners in an interview based method around the chennai city. All the questionnaire were kept anonymous.

3. Questionnaire Design:

Questionnaire

- 1) Are you aware about the cryosurgery.
a) Yes b) No
- 2) If yes, do you practise cryosurgery.
a) Yes b) No
- 3) Would you prefer this method to destroy abnormal tissues.
a) Yes b) No
- 4) If No, Why _____
- 5) Do you think cryosurgery is performed
a) Only for tumours

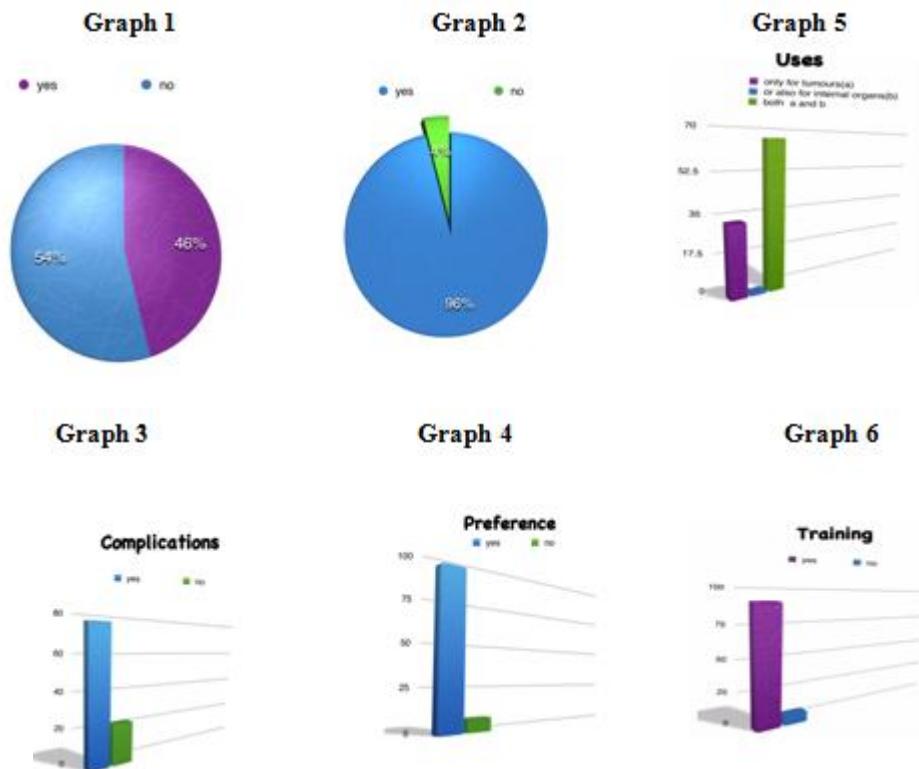
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- b) Or also for other internal organs
 - c) Both a and b
- 6) **How successful do you think is cryosurgery.**
- a) Highly successful
 - b) Moderately successful
 - c) Poorly successful
- 7) **Which is the most common material used for cryosurgery.**
- a) Liquid nitrogen
 - b) Carbon di oxide
 - c) Argon
- 8) **Are you aware about the cost and insulation of cryosurgery.**
- a) Yes
 - b) No
- 9) **Are you aware about the complications associated with cryosurgery.**
- a) Yes
 - b) No
- 10) **Cryosurgery in dentistry can be used in _____**
- 11) **Are you liked to be trained in cryosurgery.**
- a) Yes
 - b) No

4. Result



On analysing the above data, from graph 1 .46% of dentists were aware about cryosurgery, out of which 96% were not practising according to graph2, the main reason was due to increased costs and insulation, 92.3% dentists prefers cryosurgery and they are willing to be trained, graph 3 show that 76.9% were aware about the complications associated, with cryosurgery and graph 4 shows that 66.2% of dentists prefer to use cryosurgery for treatment of both tumours and for lesions in internal organs.

5. Discussion

Zuniga MD etal, said that most studies on the frequency of oral disease in children have involved surveys with an emphasis on caries, periodontal disease, or specific diagnoses such as tumors or cysts[8] , from graph 4 represents that about 92.3% of the dentists also prefer cryosurgery for treating the oral lesions. Whenever cryosurgery is possible, it should be the first option to treat a wide variety of skin and oral mucosa disorders in children instead of other surgical techniques. Since cryosurgery is a non-invasive therapy, it does not need local anesthesia,

never has complications during the surgery procedures, and it may be used to treat multiple lesions at the same time[9]. It is not exactly understood how cooling reduces pain. It is probably by reducing inflammation, causing vasoconstriction and subsequent reduction in edema and pain-producing mediators such as bradykinin, 5-hydroxytryptamine, P substance, and eicosanoids [10,11]. Necdet Dogan, etal discussed about the adverse effects of cryotherapy are usually minor and short-lived. Lymphangiomas are thought to be very suitable for treatment by cryosurgery because of their high fluid content and poor blood supply, this survey also concludes from graph 3 that, about 76.9% of the dentists says cryosurgery gives less complications in treatment on tumours and precancerous lesions [12]. The graph 5 tells that 33% of the dentists prefer cryosurgery only tumour treatment whereas 66.2% of the dentists prefer cryosurgery for treating both tumours and internal organ lesions, in graph 6 shown above 92.3% of the dentists are interested to get trained in cryosurgery treatment. Most dentists hesitate to prefer this treatment due to high costs and insulation which is being the major factor for lack of cryotherapy treatment. The main disadvantage of

the cryosurgery is the lack of specimens to be examined postoperatively in order to confirm the diagnosis (25). Therefore, this technique can only be used in cases where the professional has a sure clinical diagnosis or the diagnosis is confirmed by anatomical and pathological examination. In the present case series, all lesions were diagnosed by clinical aspects only. Other disadvantages include unpredictable degree of swelling, lack of precision for depth and freezing area, and high dependence on the operator's skill and experience [13].

6. Conclusion

From the result we can conclude that cryosurgery therapy is not been much aware and practised among the Dental practitioners and this therapy is not being majorly performed by Dental practitioners. So there need to Continuous Medical Education program among the Dental practitioners to improve their awareness.

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