

Oral Care Products: When, Where, and How

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ABSTRACT

Background: The present study summarizes information on choice and duration of the oral care products (toothpastes and mouthrinses) prescribed by dental practioners with the purpose to evaluate active ingredients present in the popularly prescribed toothpastes and mouthrinses, and their safety on oral tissues. A survey was conducted amongst 50 dental practioners and specialists. The results showed varied options chosen as well as varied duration being prescribed. Keeping in mind the safety profile recommendations on duration of use has been also given.

Keywords: Questionnaire, toothpaste, mouthrinses, gumpaints, duration, dose.

INTRODUCTION

Although the oral health care products are being prescribed by the dental practioner, the correct duration of use and their deleterious effects and safety margins of these products are not taken much into consideration whilst making prescribing them. Hence to assess the awareness amongst dental professionals a survey was conducted amongst 50 dental practioners and specialists.

Aim of the study

The purpose of this paper is to evaluate active ingredients present in the popularly prescribed toothpastes and mouthrinses, and their safety on oral tissues.

MATERIAL AND METHODS

This pilot study consisted of 50 dental practioners and specialists, information regarding their choice and duration of the oral care products prescribed by them was obtained. The purpose of this paper is to review and evaluate the efficacy of active agents incorporated in the popularly used toothpastes and mouthrinses, with particular emphasis on the

ingredients incorporated in commercially available products.

Also the duration of use so that optimum use of the products can be made, will be discussed.

Questionnaire

- 1.Date:
2. Name:
3. Qualification: B.D.S / M.D.S (Specialisation in _____)
4. Type of practice: General Dental Practice and/ Speciality Practice ____)
5. Address of your workplace:
6. Preferred brand of oral health care products frequently prescribed by you:
 - a) Toothpaste:
 - i) General purpose:
 - ii) Desensitising:
 - iii) Duration of use recommended:
 - b) Mouthwash:
 - i) General purpose:
 - ii) Duration of use recommended:
 - iii) Desensitising:
 - iv) Duration of use recommended:
 - c) Gum paint:
 - Duration of use recommended:

Received: Dec. 21, 2016; Accepted: Feb. 17, 2017

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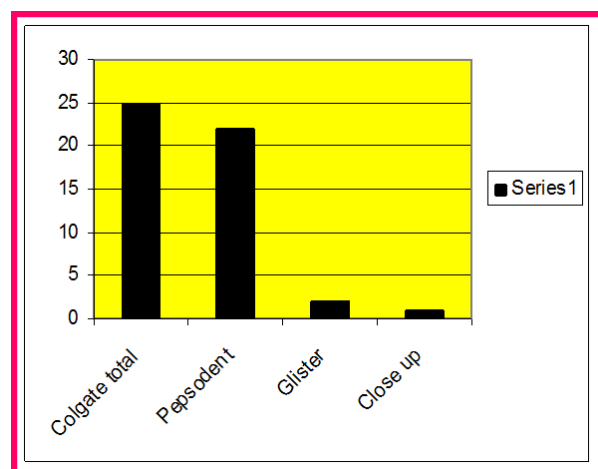
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7. Whether satisfied with the results: Yes No Cant say

- Toothpaste:
- Mouthwash:
- Gum paint:

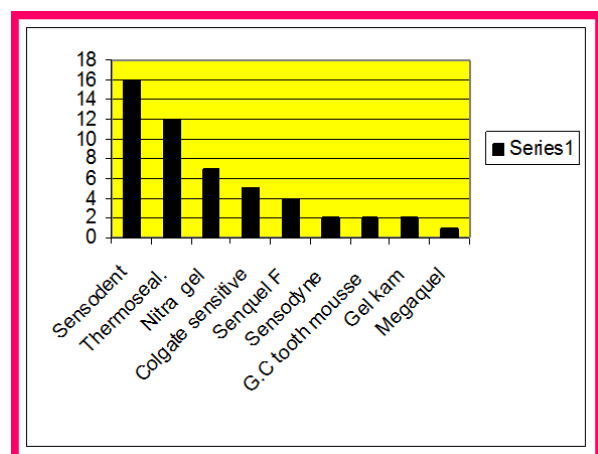
RESULTS

The toothpastes most commonly prescribed for regular use were: Colgate, Pepsodent, Glister and close up. The results showed the most widely used toothpaste was colgate(50%).



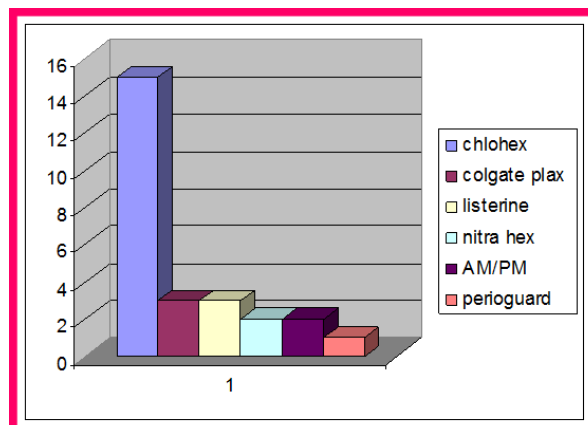
Graph 1: Most commonly used toothpaste.

Prescribed toothpastes for sensitivity were Sensodent, Thermoseal, Nitra gel, Colgate Sensitive, Senquel F, Sensodyne, G.C tooth mousse, Gelkam and Megaquel. The results showed the most widely used toothpaste was Sensodent (32%).



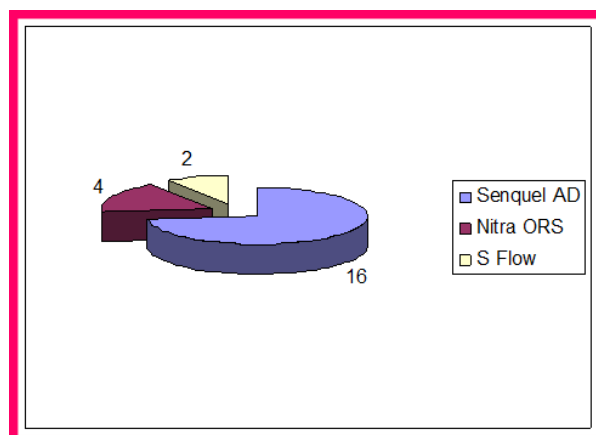
Graph 2: Most commonly used desensitizing toothpaste.

The mouth washes prescribed for general use were Chlohex, Colgate Plax, Listerine, Nitra hex, AM/PM and Perioguard. The results showed the most widely used mouthwash was Chlohex (30%).



Graph 3: Most commonly used mouthwash.

The desensitizing mouthwashes prescribed were Senquel AD, Nitra ORS and S Flow. The results showed the most widely used mouthwash was Senquel A.D(32%).



Graph 4: Most commonly used desensitizing mouthwash.

Duration being prescribed

Regarding the duration a wide variation occurred ,

- 1) Tooth pastes for *general use* were prescribed to be used life long.
- 2) The *desensitising toothpastes* were prescribed from a duration of period of 2 weeks till 6 months.
- 3) Mouth wash containing *chlorhexidine* was the most popularly prescribed, duration being 1 to two

months. A duration of two weeks to two months was mentioned frequently. However, specialists *do not recommend mouthrinses* for regular use, but only for a short period.

4) The *desensitising* mouthwashes were prescribed again for one week, two weeks till 6 months, most common time period being two weeks to one month.

DISCUSSION

Dentifrices:

Composition

Contents

- Detergent - 1-2%
- Abrasive - 25-60%
- Binder (thickener) - 1-2%
- Humectant - 20-40%
- surfactant - 1-1.5%
- Water - 15-50%
- Preservative, sweetener coloring agent - 2-3%

Compositions of recommended toothpastes for general use

Colgate Total: PVM/MA, Silica Na F, Sorbitol

Pepsodent: Silica, Sorbitol, SLS

Glister : NaF, SLS, silica, xylodent

Close Up: Silica, sorbitol, flavour

Compositions of recommended toothpastes for desensitising

Sensodent: potassium nitrate

Thermoseal :potassium nitrate, sodium monofluoro phosphate

Nitra gel :potassium nitrate, sodium monofluoro phosphate

Colgate sensitive :potassium nitrate, sodium monofluoro phosphate

Senquel f:potassium nitrate, triclosan

Sensodyne: potassium nitrate, strontium chloride

G.c tooth mousse: casein phosphopeptide, amorphous calcium phosphate

Gel kam :stannous fluoride

Mega quell: potassium nitrate, sodium monofluorophosphat

Ingredients present in the oral care products mentioned in the study

Abrasives:

Abrasive defects on the root surfaces may be a combined

effect of erosion and mechanical trauma from oral hygiene procedures¹. The pattern and size of the defect seems to be correlated to toothbrushing technique and frequency rather than abrasiveness of toothpastes used.² The minority view is that toothpastes do have the potential to cause abrasion of enamel in vivo.^{3,4}

Sodium lauryl sulphate-detergent used in tooth pastes

Sodium lauryl sulfate (SLS), the most widely used detergent in toothpastes. Toothpastes containing SLS may increase the permeability of the oral mucosa, thus aggravating symptoms from various oral mucosal diseases. SLS in toothpastes significantly increased the incidence of desquamation of the oral mucosa.^{5,6}

Triclosan

Non ionic antimicrobial incorporated in toothpastes and mouth washes. Its antibacterial spectrum and its ability to be retained in the oral cavity seems to fulfill the requirements of an effective antiplaque agent.⁷ Although triclosan has been shown to be retained in dental plaque for at least 8 hours, the salivary release curve is relatively steep.⁸

Combination of triclosan with substantivity enhancing agent like PVM/MA Polymer –demonstrated an increase retention and release.^{9,10} Some formulations combine triclosan with an anti bacterial agent (Zinc Citrate) thereby aiming at an additive or synergistic effect. Whether the reported anti-inflammatory action¹¹ of Triclosan should be

regarded as an unwanted effect remains an unanswered question

Metal salts-incorporated in toothpastes and mouth washes

Zinc salts
Tin salts-stannous flouride
Sodium flouride

ADVERSE EFFECTS

Metallic taste
Dryness of the mouth
Yellow-brown discolouration of the teeth and tongue

It was reported by that the benefits of fluorides have been firmly established on a sizeable body of evidence from randomized controlled trials. A definite conclusions about any adverse effects that might result from the use of topical fluorides is not reached because data reported in the trials are scarce.¹²

COMPOSITION OF MOUTHWASHES

Alcohol
Surfactants
Flavouring agent
Therapeutic agent

COMPOSITIONS OF RECOMMENDED MOUTH WASHES FOR GENERAL USE

Chlohex :chlorhexidine gluconate 0.2%
Colgate plax :triclosan,sodium fluoride
Listerine :thymol,benzoic acid
Nitra hex: chlorhexidine gluconate 0.2%
AM/PM :triclosan,sodium fluoride
Perioguard: chlorhexidine gluconate 0.2%

Compositions of recommended mouthwashes for desensitising

Senquel A,D: potassium nitrate,sodium fluoride
Nitra ORS:potassium nitrate,sodium fluoride
S-flo: sodium fluoride

Chlorhexidine

Considered as a gold standard in

periodontics.¹³Proportion of chlorhexidine retained is dependent on concentration and volume of rinse.

Adverse effects

-extrinsic staining
-taste perturbation
-oral mucosal erosion
-enhanced supragingival calculus formation¹⁴

There is some evidence to show that chlorhexidine can delay wound healing ¹⁵
On cellular level ,produce cytotoxic effects on host cells.¹⁶

Safety of Oral hygiene products

A review showed that the oral hygiene products are not entirely safe to use, because almost 50% of the products studied contained a total of some 30 compounds widely recognized as allergens,most common being flavours (e.g., cinnamic aldehyde, cinnamon oil and peppermint) and preservatives. They cause Symptoms like stomatitis, cheilitis, glossitis, gingivitis, perioral dermatitis and immediate hypersensitivity.¹⁷

Summary and conclusion

The present study concluded that:

- 1)Toothpastes with simple basic formulations were commonly prescribed for regular use.
- 2) The toothpastes containing potassium nitrates and sodium monofluoro phosphates arecommonly prescribed for desensitising.
- 3) Chlorhexidine was the most commonly used mouthwash for general use,however specialists recommend this for only a short period.
- 4)Most of the practioners used desensitising mouth rinses containing sodium fluoride and potassium nitrates .

Duration of use recommended

Triclosan

The minimum period required is 21 days¹⁸. Best effect is seen from 3-6 months after initiation of triclosan use ¹⁹

Listerine

Grossman et al 1989, demonstrated no serious adverse effect on usage of Listerine twice daily even upto 6 months.²⁰

Chlorhexidine

The recommended duration from manufacturers suggest a duration of approximately 4 weeks as an adjunct to mechanical oral hygiene.

Following oral surgery chlorhexidine should be commenced immediately before or after oral surgical procedures and continued throughout the therapy or for several weeks after each surgical procedure.³

Chlorhexidine demonstrated no serious adverse effect on usage of CHX 0.2%,0.12% twice daily upto 6 months, 12, even upto 2 yrs.^{20, 21,22}

Desensitising agents

Minimum duration of two weeks is required for desensitising mouthwashes.²³

Manufacturers recommend a period of 21-25 days

CONCLUSION

It can be observed by the above study that these products are prescribed under the assumption that they are 100% safe. Whereas scientific data shows that there are isolated reports which show that there are some injurious effects on the various oral tissue and their safety needs to be established. An important aspect of preventive and therapeutic means to be applied on a population level is that the drug must be effective, but equally important is that adverse effects are minimal. Toothpaste is just a media to make brushing a pleasant habit.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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