

Fluoride varnish for the teeth

James Noble¹ extols the virtues of professionally applied topical fluoride in the form of a varnish.

Introduction

The administration of professionally applied topical fluoride (PATF) is a routine procedure in dental surgeries and is important as a prophylactic treatment in patients who are at high risk of developing dental caries. Evidence-based guidelines recommend the use of PATF in patients who are at moderate to high risk of dental caries. Common techniques to administer PATF include a gel or foam in trays and a dual rinse. An alternative method that has been gaining popularity in recent years is the use of a fluoride varnish. Evidence has shown that fluoride varnish is effective for reducing caries in high risk individuals.

Fluoride varnish

Method of application

The procedure begins by first removing excess moisture in the patient's mouth with a cotton swab, cotton roll or air syringe. Meticulous drying is not necessary, as the varnish will set in the presence of moisture. Depending on the number of teeth to be treated, approximately 0.5 ml to 1 ml of varnish should be dispensed in a dampen dish, glass slab or mixing paper per procedure. This amount should be enough for the entire dentition. The varnish is then applied as a thin layer on all tooth surfaces with a disposable brush or cotton swab and it rapidly sets, hardening within seconds. If contacts are tight, the varnish may be flossed interproximally. No drying is required after application. The patient can close their mouth immediately following treatment and is permitted to rinse or drink. The patient should be instructed to eat only soft foods for four hours following application and may be advised to abstain from brushing their teeth that night to prolong contact between the varnish and tooth structure and allow a slow release of fluoride.

The varnish may wear off after the patient eats hard food and it will be removed once the patient brushes their teeth.

Advantages

Numerous advantages exist in using fluoride varnish instead of other methods of PATF application. Fluoride varnish has the highest concentration of fluoride of all the PATF methods (22,600 ppm sodium fluoride) and less fluoride is used per application. It has the ability to stay on enamel for an extended period of time. This allows for a timed release of fluoride. Because a dry field is not essential, it can be used in patients who have poor salivary control. Furthermore, the risk of rapid ingestion is reduced. When plasma fluoride levels were measured following topical fluoride treatment, they were found to be far below those considered toxic. Indeed, the use of fluoride varnish is considered a highly safe mode of treatment with minimal adverse effects.

Evidence suggests that use of fluoride varnish takes less time, is lower in costs and results in reduced gagging, fewer signs of discomfort and greater patient acceptability than use of a foam in trays.

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Disadvantages

Some varnishes leave a temporary yellow discolouration of tooth structure. This is advantageous to the dentist or hygienist as they can visually ensure that every tooth surface has been treated, but this may not be to the liking of the patient.

Another disadvantage of using fluoride varnishes is that one author reported a short-term burning sensation if it contacts gingival tissue. It is also contraindicated in patients who have asthma because of a possible allergy. Also, some varnishes may contain colophony, a component that promotes its adherence to tooth structure. Although there have been few reported cases, some patients have a contact allergy to colophony and varnishes are contraindicated in these patients. In the long-term, dental staff may be at risk of developing a contact allergy to the colophony present in varnishes.

Another limitation is that the application of fluoride varnish requires more manual dexterity compared to other methods.

Reducing caries

Fluoride varnish is an alternative PATF application. Evidence indicates its efficacy in reducing caries. Because it allows for a slow release of fluoride into enamel, it may be superior to conventional methods such as gel, foam or rinses. It is a simple procedure to administer but requires more manual dexterity. Furthermore, it is associated with less fluoride toxicity, higher patient acceptability and lower costs.

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