

Summary and conclusions

Dental caries is a chronic, life-long disease. If left untreated it causes toothache and may lead to tooth loss. Incorporation of fluoride in toothpaste has contributed to a dramatic reduction in the incidence of caries among children and young adults in Sweden. Daily brushing with fluoride toothpaste is the most cost-effective method of preventing caries.

Arginine has recently been introduced as an additive to toothpaste and other fluoride-containing dental care products. Initially marketed for treatment of sensitivity of the exposed necks of teeth, arginine is now being promoted as a caries-preventive agent.

This purpose of this assessment is to evaluate the effect of the addition of arginine to dental care products, on preventing the development of new caries lesions and the progression of existing caries lesions in children and adults.

Conclusions

- ▶ At present there is insufficient evidence to determine whether arginine has a caries-preventive effect. Further studies of higher quality, and studies which are less dependent on commercial interests, are needed. The caries-preventive effects of fluoride toothpaste with arginine have been investigated in children. However, due to conflicts of interest and weak transferability to Swedish conditions, no conclusions can be drawn from these studies. They were funded by the company

which manufactures the test product (arginine-containing toothpaste), and the company's representatives participated actively in every phase of implementation of the studies. One of the methods used in the studies, Quantitative Light-induced Fluorescence (QLF), measures only changes in dental enamel, which is regarded as a secondary effect measure. This reduces the transferability, as does the fact that the study population cannot be generalised to Swedish dental care.

- ▶ **Arginine-containing toothpaste costs about 40 percent more than basic fluoride toothpaste.** To determine whether it is more cost-effective, the higher cost must be considered in relation to any additional caries-preventive effect of the arginine supplement. Preventive dental care is essentially self-care, hence it is up to the individual to decide what he or she is prepared to pay.
- ▶ **Questionable research ethics: several of the scrutinised studies included a control group of children who used non-fluoride toothpaste.** Toothpaste without fluoride is not as effective against dental caries as the standard treatment – fluoride toothpaste – which has a well-documented effect. Using such a control group thus contravenes the fundamental principles of research ethics and could lead to suppression of research on this or other relevant scientific issues.

For more on this report, please visit www.sbu.se/201405e

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This is a collaborative project between HTA-O¹ and SBU

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Further reading

The full report (2014-05) is available at www.sbu.se/201405. SBU's method is described at www.sbu.se/metodbok. Contact person: Pernilla Östlund (registrator@sbu.se).

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¹ *Recently inaugurated at Malmö University, HTA-O is a unit dedicated to HTA in odontology (study of the teeth and diseases affecting the teeth)*