Smoking cessation and the role of the dental practitioner

Abstract
As dentists we are uniquely positioned to influence the rate of tobacco smoking and could contribute to a decrease in the associated mortality and morbidity. The detrimental effects of smoking on oral health are well established; thus, a structured approach to initiate smoking cessation, help to manage the initial phase of withdrawal symptoms, and provide long-term support is an important role for our profession. It has been shown that smoking cessation advice for even a few minutes increases long-term smoking abstinence rates by 5%, which can be increased by 50-70% with the use of adjunctive pharmacotherapy, e.g., nicotine replacement therapy, for withdrawal symptoms. This article aims to give a brief overview of smoking in relation to oral health, review the management of tobacco smoking dependence, and discuss how we as dentists can help our patients to quit smoking.

Introduction
Most people are aware that tobacco smoking has serious effects on health and that it is the leading cause of preventable death worldwide. In spite of this, data from the Health Service Executive (HSE) from December 2013 show that 22.9% of the male and 20.2% of the female population in Ireland smokes tobacco. Although the negative effects of smoking, including cancer, cardiovascular disease and lung disease, are well recognised by smokers, they consistently underestimate their own risk of developing disease. A similar pattern of underestimation of their own risk appears to hold true for the association between smoking and oral cancer, although the general awareness that smoking can cause oral cancer is significantly lower than knowledge of the risk of cardiovascular/lung disease. In an effort to raise public awareness of oral cancer, the annual Mouth Cancer Awareness Day (MCAD) was introduced in 2010 in Ireland. In the MCAD campaign for the prevention and early diagnosis of oral cancer, a key message is the importance of smoking cessation in decreasing the risk of developing oral cancer.

The negative effects of smoking on oral health are many and range from halitosis, unsightly staining of teeth, and black hairy tongue, to periodontal disease and squamous cell carcinoma of the oral mucosa. It has been estimated that up to 50% of all periodontal disease, 91% of all oral cancer in males, and 59% of oral cancer in females may be associated with smoking. In a recent study it was shown that 90.6% of oral and pharyngeal cancers in the UK are linked to lifestyle: 93% in males and 85% in females. The majority of these were estimated to result from smoking. The benefits of smoking cessation with regard to oral health should prompt action by the dentist. Directed questions about our patients’ smoking habits must be part of all dental assessments.

Discussion
Smoking and oral health
It is estimated that more than 50% of all smokers visit a dentist every year, hence, this is an opportunity to inform them about the risks of smoking and what benefits smoking cessation has on oral health, and health in general. The negative effects of smoking on the oral cavity are numerous. In effort to raise public awareness of oral cancer, the annual Mouth Cancer Awareness Day (MCAD) was introduced in 2010 in Ireland. In the MCAD campaign for the prevention and early diagnosis of oral cancer, a key message is the importance of smoking cessation in decreasing the risk of developing oral cancer.

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lowering the risk of developing alveolar osteitis (‘dry socket’). Moreover, it has been shown that smoking increases the failure rate of dental implants, as well as impairing the aesthetic outcome of dental implant treatment, due to failure of papilla regeneration and increased gingival recession.

Smoking cessation plays a role in preparing the patient for any dental treatment. The long-term beneficial effects of smoking cessation include decreased progression of periodontal disease and a decreased risk of oral cancer. Oral cancer constitutes 2-3% of all cancers worldwide and carries a high mortality rate. It has been shown that smokers have a two- to five-fold increased risk of developing oral cancer and that this risk is dose dependent, i.e., the risk increases with the number of cigarettes and the years of use. The risk of developing oral cancer further increases if smoking is combined with excessive alcohol intake, which acts synergistically to increase the risk. There is no way present to predict which patients will develop oral cancer. Thus, the only way to protect against oral cancer is smoking cessation and to decrease alcohol intake to lower and safer levels.

### Diagnosing nicotine dependence

Nicotine is a highly addictive substance with physiological and psychological effects. It is known that nicotine, via actions on pre- and postsynaptic nicotinic receptors, affects a wide array of neurological functions by modulating the release of various neurotransmitters such as acetylcholine, serotonin, noradrenaline and dopamine. Thus, nicotine has several possible effects that could cause dependence. One mechanism for this has been shown to involve the mesolimbic dopaminergic system in the reinforcing effects of nicotine.

The Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) and the International Classification of Diseases, 10th revision (ICD-10) criteria for nicotine dependence could be used for its diagnosis; however, in clinical practice, a formal diagnostic assessment of nicotine dependence is seldom warranted. Many patients with nicotine dependence are aware of their addiction and a history of previously failed cessation attempts is common. It is important to take a detailed history of the patient’s tobacco habits including quantity, modality and length of use. The Fagerström Test for Nicotine Dependence (FTND) could be used to assess the degree of nicotine dependence and studies have shown that the score from the FTND correlates with the risk of cessation failure. It is important to discuss previous cessation attempts with patients in order to identify potential blockages for successful treatment.

### Treatment of tobacco smoking dependence

#### Brief intervention

It is estimated that, in developed countries, approximately 30-40% of all smokers try to stop smoking in any given year, but only 2-3% succeed long term. Interestingly, the long-term success rate can be doubled to about 5% by a three-minute brief intervention by the patient’s general practitioner. The general dental practitioner could probably achieve similar results, and it has been shown that brief intervention by a dental practitioner can result in cessation rates of 5-12%. A brief intervention is when a general medical or dental practitioner gives advice regarding the benefits of smoking cessation to the patient. This advice is to motivate and help the patient to stop smoking. It has been shown that focusing on short-term benefits is more effective than focusing on long-term risks. A brief intervention typically involves identification of the problem, i.e., establish that the patient has an addiction, assess if the patient has considered stopping smoking, assess their level of motivation, provide support and guidance, and arrange follow-up to monitor progress, assess drug compliance, and provide encouragement. Currently, the Quit campaign (www.quit.ie) by the HSE provides a good source of information for both patients and healthcare providers regarding smoking cessation.

#### Nicotine replacement therapy

A Cochrane report published in 2008 concluded that the percentage of successful smoking cessation could further be increased by 50-70% by the addition of pharmacotherapy, such as nicotine replacement therapy (NRT), when compared to brief intervention. This Cochrane report suggests that NRT obtained without prescription appears to have similar efficacy as when prescribed. Thus, a brief intervention combined with advice regarding NRT has a significant positive effect on the smoking cessation rate. NRT is used to reduce the intensity of the withdrawal symptoms on smoking cessation and in weaning doses of nicotine for about eight to 12 weeks after smoking cessation. The aim of NRT is to increase the cessation rate and reduce the relapse rate. NRT can be delivered by a wide array of technical modalities, including transdermal patches, chewing gum, lozenges, nasal spray and, more recently, via electronic cigarettes. NRT has a good overall safety profile and is available in Ireland as over-the-counter preparations. The various modalities of nicotine administration have many similarities, but with a few differences. Nasal sprays have a more rapid nicotine delivery than other NRTs. The plasma nicotine peak is reached with a similar speed to smoking. This might be of benefit when treating highly addicted patients. However, there is an increased risk of unintended long-term use.

Recently, electronic cigarettes have emerged as a new NRT modality. A Cochrane report published in December 2014 concluded that electronic cigarettes are more effective than placebo, but the confidence in this result is rated as ‘low’ by GRADE standards. This Cochrane report found no evidence that short-term electronic cigarette use is associated with health risk. The long-term effects of electronic cigarettes on lung function and risk of oral cancer are not known. Today the effectiveness of electronic cigarettes as a smoking cessation tool is unclear, as is the role of electronic cigarettes as an instrument to reduce disease burden. It has been suggested that conventional NRT is to be recommended until electronic cigarettes have been longitudinally evaluated. The recent Cochrane review concluded that more studies on electronic cigarettes are needed and it stated that there are currently a number of ongoing studies aiming to assess the efficacy and safety of electronic cigarettes.
Conclusions

To optimise treatment outcomes in dentistry, be it composite fillings, extractions, or periodontal therapy to reduce the risk of developing oral cancer, it is in the interest of all dental practitioners to actively try to influence their patients to stop smoking. Since patients commonly return to the same dental practitioner for many years, this provides a unique opportunity for health-promoting initiatives such as smoking cessation. Given that brief intervention in combination with over-the-counter pharmacotherapy, e.g., NRT, has a proven efficacy in increasing the success rate of smoking cessation, this provides a scientific basis on which dental practitioners can offer help and support for their patients who smoke tobacco. Also, long-term support can easily be delivered by a few directed questions and encouragement during routine examinations. We suggest that every dental assessment should include a detailed history regarding tobacco use, and advice and support about smoking cessation should be offered.

References