REVIEW

Role of General Dental Practitioners in Smoking Cessation Programme

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Abstract

Tobacco use is a dental as well as a medical problem. Its use is the root cause of many oral health problems including periodontal disease and tooth loss. In the past few years, there has been an increasing awareness of the role of tobacco use in the prevalence and severity of periodontal disease. Like other health professions, dentistry has taken a stand against cigarette smoking. Dentists can use a variety of smoking cessation techniques to prevent the oral health problems associated with tobacco use. To carry out a minimal programme of antismoking measures, dentists in general practice can serve as a non-smoking role model for their patients, provide information about the health hazards of smoking, give advice and guidance, refer patients to cessation programmes, recommend cessation measures and monitor patients' effort to quit smoking. Dental practice in 21st century has to increasingly move from a restorative orientation to one of a broader promotion of health and wellbeing.

KEY WORDS: Dental practitioner, Smoking, Cessation Programme, Intervention

Introduction

Tobacco smoking is a ubiquitous personal and environment pollutant. Tobacco is used in the western culture for more than 400 years. Use of tobacco product is a complex learned behaviour that is woven into the fibre of daily living and is linked to how the smokers deal with the world. Adolescents substantially underestimate their personal risk of disease or death from the use of tobacco and overestimate the ease of quitting. Emotionally conditioned ties become paired with neuroregulatory effects of nicotine to reinforce the addictive process. This is characterized by craving for tobacco products, depressed mood, insomnia, irritability, anxiety and difficulty in concentrating, restlessness and increased appetite.

Tobacco use is a dental as well as a medical problem. Its use is responsible for one in five deaths primarily from cardiovascular disease, lung cancer and other type of cancers and respiratory diseases. The important carcinogens associated are aromatic hydrocarbons, N- nitroso compounds found in tar residue. Tobacco smoke also contains noxious substances which are injurious to health such as benzanthracene, hydrogen cyanide.

In dentistry, smoking is the root cause of many oral health problems including periodontal disease.[1] Tobacco use substantially worsens the prognosis of periodontal therapy and dental implants, impairs oral wound healing and increases the risk of patient's experiencing a wide range of oral soft tissue changes.[2] One unique aspect of dentistry is that some of the adverse effect of tobacco use are clinically apparent in the oral cavity in even relatively early stage of use. [3, 4] Oral manifestations can help personalize the interventions and increase their effectiveness, particularly among

young users in the early stages of tobacco initiation. [5, 6] Adolescents substantially underestimate their personal risk of disease or death from the use of tobacco[7, 8] and overestimate the ease of quitting.[9] Patients welcome tobacco cessation advice as part of treatment for the cosmetic problems associated with tobacco use.[10]

Characteristics of smokers:

Among the substance found in tobacco smoke, alkaloid nicotine is one of them. This is responsible for the dependence that characterizes the smoking habit. It has led to some behavioural changes wherein it was found that smokers are more impulsive; drink more alcohol, tea and coffee than non-smokers. They take more risk and show less compliance with authority than non–smokers. Cigarette consumption increased with degree of extroversion in the subjects concerned.

Blood pressure of smokers is slightly higher than that of non- smokers. Increased number of pulmonary alveolar macrophages are present in smokers and function and metabolism of these cells are abnormal. Smokers show small increase in haematocrit, WBC count and platelet count as well as small decrease in leukocytes. Serum uric acid, vitamin C and albumin levels are reduced in smokers. Smokers age faster and are prone to many systemic diseases like cardiovascular disease, respiratory disease, preterm delivery, low birth weight baby, osteoporosis, periodontal disease and tooth loss.

Effects of smoking on dental structures:

Tobacco smoke produces black or brown stains on the tooth surface, which are caused by tar products of tobacco consumption. However the degree of smoking does not correlate with the level of oral cleanliness nor with the amount of tobacco consumed.[11] Highest prevalence of plaque is seen in smokers than non-smokers. Smokers show a higher prevalence of dental plaque than non-smokers suggesting more severe periodontal disease in smokers might be because of greater accumulation of plaque.[12] Smoking affects the mineralization rate rather than formation rate of supragingival plaque. Smoking causes a modification of saliva resulting in elevated levels of calcium and phosphorous.[13]

Smoking leads to increased colonization of periodontal bacteria in shallow pockets. Micro-organisms mostly present are P.gingivalis, A.actinomycetemcomitans, F.nucleatum and T.forsythensis is found 2-3 times more in smokers. Kenney et al (1975) reported a dramatic fall in oxidation reduction potential in gingiva and floor of the mouth.[14] However, cross sectional data from Erie Country Study population demonstrated that the proportion of subjects positive for A.a, P.g and Bacteroides forsythus was significantly higher among current smokers as compared to never smokers.[15]

Smoking leads to suppression of gingival inflammation. Nicotine causes vasoconstriction which results in suppression of the vascular properties of inflammation like bleeding on probing, redness and exudation. Reduced bleeding on probing was demonstrated by Bregstrom and Bostrom. Cigarette smoking masks the clinical signs of gingivitis and periodontitis and complicates the usual approach to diagnose this disease.[16,17] In an in vitro study nicotine has been shown to supress the production of inflammatory mediators' interlukin -1 and IL-8 in activated macrophages. [18] The concentration of several pro inflammatory cytokines (TNF α, IL -6, and IL -8) may be increased in GCF of smokers compared with non-smokers with periodontitis.[19]

Tobacco smoking has been found to be a major environmental factor associated severe periodontitis. The probing depth, clinical attachment loss and alveolar bone loss have been shown to be more severe among smokers as compared with non-smokers. Gelskey SC 1988 found that smokers nicotine level showed direct correlation with periodontal breakdown, suggesting a dose response relationship between smoking and periodontal disease exhibited in a longitudinal study. [20]

Smoking depresses immune response and associated with decreased level of circulating antibody, alters neutrophil function like migration, chemotaxis, and phagocytosis and also alters their number.[21] Evidence indicates that nicotine can alter neutrophil phagocytosis and chemotaxis, suppress osteoblast proliferation, and stimulate alkaline phosphatase activity.

There is impaired healing and poorer clinical results to both non-surgical and surgical periodontal therapy of smokers versus non-smokers. With non-surgical therapy as the main treatment modality, most authors report greater reductions in probing depth in non-smokers compared with smokers.[22 -26] There was less reduction of bleeding on probing, less reduction of probing depths, smaller gain of attachment after treatment with local drug delivery.[27 -32] Reported results from a 10-year radiographic follow-up study of alveolar bone loss which found that the progression of bone loss was significantly retarded in those who had quit smoking during the study compared with continual smokers. Smokers have less success with open flap debridement, osseous resection, soft tissue and bone graft procedures, and guided tissue regeneration procedures. The implant failure rate in smokers is significantly higher than in non-smokers. The factors that contribute to impaired wound healing are revascularization of bone and soft tissue, PMN altered chemotaxis, phagocytosis and adherence, altered antibody function, negative effect on bone metabolism that may influence osteoporosis and periodontitis.

Benefit of quitting:

Evidence of the potential benefit to be gained by quitting smoking comes from cohort and cross-sectional studies that compare periodontal health in current smokers to that of former smokers and individuals who have never smoked. [33-36] This relationship is suggestive of a dose–response relationship between smoking and periodontal health and indicates the potential benefit of quitting. Smoking cessation advice and smoking cessation may result in a long-term benefit to the periodontal condition and have a significant impact on the prevalence and progression of periodontal diseases.

Tackling the problem of smoking:

Tackling the smoking problem can be done under three stages. Initially individual and the parents, secondarily wife, children, relatives, colleagues, friends and thirdly by medical practitioner, organizations, dentist, dental hygienists help smokers come out of smoking habit.

Patient's attitude toward tobacco cessation advice:

Some patients are easily offended when asked to quit smoking. Some patients request treatments that counter the effects of tobacco use on their appearance, such as whitening agents, porcelain laminate overlays, crowns, and plastic composites. Patients welcome tobacco cessation advice as part of treatment for the cosmetic problems associated with tobacco use.

Tobacco cessation in dental clinic:

The dental office provides an excellent venue for providing tobacco intervention services, as more than one-half of adult smokers and nearly three fourths of all adolescents see a dentist each year. Dental patients are particularly receptive to health messages at periodic check-ups, and oral effects of tobacco use provide visible evidence and a strong motivation for tobacco users to quit. Adults aged 20-44 years rarely visit their physicians for preventive care unless such visits are mandatory. In contrast, more than half of adult smokers see a dentist each year for prevention-oriented care. This puts dentists in a much better position to provide tobacco cessation interventions than physicians. During the oral check-up patients would listen as they are in pain. Personalizing advice by pointing out these effects can provide strong motivation to tobacco users to quit. Randomized clinical trials have shown that even brief dental office-based interventions can be effective in motivating and assisting tobacco users to quit.

Brief, effective tobacco cessation intervention:

Tobacco cessation intervention does not need to be time-consuming. The Public Health Service has established an intervention, called the "5 A's," which has been proven to effectively reduce tobacco use rates while only requiring 3-5 minutes implementation time. Components of the intervention can be assigned to dental hygienists, dental assistants and support staff to further reduce strains on the dentist's time. Many tobacco users visit a dental office every year, so it is important that dentists and dental hygienists be prepared to intervene with those who are willing to quit.

The five major steps (the "5 As") to intervention in the primary care setting are "ASK" patients if they use tobacco. This is most easily accomplished by including tobacco use as part of the medical history form. "ADVISE" patients to quit in a manner that is clear, strong, and personalized to the individual's situation. "ASSESS" readiness to quit using tobacco by asking. Are you willing to try to quit at this time? "ASSIST" them to quit by offering brief suggestions about how to quit, referring them to free quitting programs and prescribing nicotine replacement therapy or bupropion. ARRANGE follow-up to prevent relapse. [37]

Ask: All the patients should have their status checked at the start of each course of treatment. A simple and quick system should be devised to record smoking details in the clinical notes. This information should be kept up to date as possible. The following questions like, how many cigarette do you smoke every day? How soon after you wake up in the morning do you have first cigarette? Have you tried to stop smoking? Are you interested in stopping now? can be used within a standard medical history to assess whether the patient smokes, their level of nicotine addiction and their motivation to stop. Tobacco-use status stickers can be put up on patient charts and Indicate tobacco-use status using electronic medical records or computer reminder systems.

Advise: All smokers and those using other forms of tobacco should be advised of the value of stopping. The advice should be clear, firm and personally relevant. Although most people are aware of the harmful effects of smoking in relation to lung cancer and heart disease, fewer people know about the detrimental effects of smoking on their oral health. Scaring the patients with frightening images of diseased organs may not be effective for many people. Instead a range of reasons for supporting smoking could be highlighted, some directly related to oral health and others more general. The early effects of tobacco use on the mouth are visible and may be useful means of motivating smokers on benefits of stopping. All smokers however will have their own good reasons for stopping.

ASSESS: ***a. Assess the level of dependence:*** Tobacco users who are heavily dependent on tobacco usually have a harder time to quitting than dependent users. In a simplified way of assessing dependence, the clinician pose two questions how soon after you wake up do you use tobacco? About how many times do you use tobacco daily?

b. Assess the risk of relapse: An individual who has quit before, even just for 30 days has slow risk of relapse. Those with higher level of dependence usually need a more intensive intervention to help them avoid relapse. Individuals with depression or a concurrent habit such as regular alcohol drinking may be at risk for relapse. Rigorous follow up reduce the risk of relapse on a schedule. Such patients could be referred to a counsellor or a tobacco use cessation facility.

Assist: If the patient desires to quit smoking, help and support should be offered. For those smokers not ready to willing to give up at this point, it is best raising the issue again at a later stage to check if they have changed their opinions. Putting pressure or nagging smokers who are not ready to quit can be counterproductive and a waste of dentist's time. Assistance for those wishing to quit, dentist should negotiate a quit date (within 2 weeks) as the smokers need time to prepare. Review the past experience of quitting – identify what helped and hindered progress in the past, remove tobacco products from environment, anticipate challenges such as nicotine withdrawal symptoms (first few weeks), identify any potential problems ahead and plan how these can be dealt with, stress the importance of enlisting the support of friends, family and colleagues as their assistance is also necessary, provide practical counselling, problem solving and skills training at a later stage and recommend the use of approved pharmacotherapy. The available products are nicotine patch, nicotine gum, nicotine lozenges, nicotine inhaler, nicotine in nasal spray, Bupropion (Zyban) etc. Explore the value of using nicotine replacement therapy and buproprion (zyban), Give the details of the telephone support lines which can provide on-going support and encouragement. A website with some materials shown in powerpoint presentation. Inform the patient about the web site that offer help with quitting eg. why quit at http:/ www.whyquit.com.

Arrange: Schedule follow-up contact. Follow up soon after the quit date, preferably during the first week. Make a second follow-up contact within the first month. Schedule further follow-up contacts as indicated and congratulate success. If tobacco use has occurred, review circumstances, elicit recommitment to total abstinence. Ask the patient about the severity of withdrawal symptoms and about any possible side effects of medication being taken, such as irritation of mouth, dry mouth, confusion, abdominal pain, back pain, body ache, sleep disturbance, dizziness, and palpitation. Remind patient that a lapse can be a learning experience, identify problems already encountered and anticipate challenges in the immediate future, assess pharmacotherapy use and problems. At this early stage people need support and encouragement. Congratulate patients who have managed not to smoke over this period. Praise and encouragement can help motivate and maintain patient's determination to succeed.

The potential reasons for asking to quit smoking has reduced the risk of halitosis, improve appearance with less staining on teeth, better skin texture, save money, feel better and more energetic, break dependence on tobacco, reduce risk of cancers and their disease, better periodontal health by getting greater chance of retaining teeth for life, reduce risk of oral cancer, improved success with surgical treatment etc.

Counseling smokers who are unwilling to quit:

The method used for those who are unwilling to quit smoking is by using the following 5 R's.

Relevance of quitting: Encourage the patient to indicate why quitting is personally relevant, being as specific as possible. Motivational information has the greatest impact if it is relevant to a patient's disease status or risk, family or social situation (for example, having children in the home), health concerns, age, sex and other important patient characteristics (for example, previous quitting experience, personal barriers to cessation).

Risks of continuing tobacco use: Ask the patient to identify potential negative consequences of tobacco use and suggest and highlight those that seem most relevant to the patient. Emphasize that smoking low-tar/low-nicotine cigarettes or use of other forms of tobacco (for example, smokeless tobacco, cigars and pipes) will not eliminate these risks.

Rewards of quitting: Ask the patient to identify the potential rewards of stopping tobacco use. Suggest and highlight those that seem most relevant to the patient. Examples of rewards are improved health, improved taste of food, improved sense of smell, saving of money, feeling better about self, improved smell of home, car, clothing and breath, ability to stop worrying about quitting, setting a good example for children, having healthier babies and children, not worrying about exposing others to smoke, feeling better physically, performing better in physical activities, reduced wrinkling/aging of skin.

Roadblocks to quit: Ask the patient to identify barriers to quitting and note elements of treatment (problem solving, pharmacotherapy) that could address barriers. Typical barriers include: Fear of withdrawal symptoms, fear of failure, fear of weight gain, lack of support, depression, and enjoyment of tobacco.

Repetition at each visit: Repeat motivational intervention every time an unmotivated patient visits the dental office. Tell tobacco users who have failed in previous quit attempts that most people make repeated quit attempts before they are successful.

Conclusion

Dental practice in 21st century is moving from a restorative orientation to one of the broader promotion of health and wellbeing. If patients are seen on regular basis cessation programmes can be easily incorporated by the dental practitioner. Dental professionals have been identified as having an important role to play in supporting smokers who desire to quit. A reduction in smoking levels would improve both general and oral health and would help to reduce widening inequalities across the population. Tobacco use counselling and cessation programs are an obvious addition to other preventive services routinely offered in a dental practice. Since patients are seen on regular basis for routine dental care, cessation programmes can be easily incorporated into the oral care delivery system.

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