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Passive Smoking - An Overview

Review Article

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Abstract

Tobacco use is one among the harmful habit that kills its consumers. Tobacco is a risk factor for various conditions and is associated with various cancers. Tobacco addiction is attributed to nicotine present in the tobacco products. Smoking not only harms the smokers but also the persons who doesn't smoke by means of second-hand smoke. Though various measures been initiated and implemented to curb the tobacco use, yet the complete success is not achieved. Coordinated effort by government agencies, community organisations, professional organisations at the national and international level are required for achieving the goal of tobacco control.

Keywords: Passive Smoking; Framework Convention; Tobacco Control.

Introduction

The term unicystic ameloblastoma (UA) refers to those cystic lesi-Tobacco use is the second major cause of mortality worldwide, and responsible for the mortality of about one in ten adults all over the world. World Health Organisation focuses on the ways to control the supply of and demand for tobacco products and also to protect public health.Cigarette smoking is considered as one the biggest public health disasters of the 20th century, with more than 20 million attributable deaths. The World Health Organization estimates that tobacco use cause death of about six million people each year and 600,000 from the effects of passive smoking.[1] Tobacco history goes back more than 4000 years. Native Americans used tobacco as a narcotic substance and Christopher Columbus brought the tobacco back to Europe in 1493. During 16th and 17th centuries tobacco usage increases in Europe. [2] More than 4000 bioactive chemical compounds have been found from cigarette smoke, of which over 60 are cancer inducing compounds. [3, 4]

Topical, subcutaneous administration of polyaromatic hydrocarbons, found in cigarette smoke, may cause cancer in animals. Tobacco chewing and snuff taking have also been reported to produce cancers including oesophageal, oral, pharyngeal and laryngeal cancers [2].

Health Effects Of Smoking

Cigarette smoking causes acute adverse health effects as well as chronic health effects that appear at older ages, such as lung cancer. Long term health effects are more likely to be fatal than the short-term health effects which are less likely to be directly fatal. [5] Lung cancer accounts for 12.8% of all cancers all over the world and it is highly lethal among both males and females. Tobacco use has been reported to be the major cause of 90% of lung cancer in males and 79% of lung cancer in female. [2] Smokers were found to have 20-40 times more risk for developing lung cancer when compared to non-smokers. [6] Pulmonary carcinoma risk was found to be increased when cigarette smoking is combined with exposure to arsenic, radon and asbestos. [2] Exposure to carcinogens results in DNA damage in smokers which is found to be directly related with the numerous cytogenetic changes present in lung cancer.4Cigarette smoking damages the endothelium in the arteries and it was reported that nicotine and oxidizing chemicals are related with dysfunction of the endothelium. Smoking is related with cardiovascular events due to increase in the risk of thrombosis. [4]

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Cigarette smoking predisposes the individual to various cardiovascular events including stroke, acute stable angina, acute coronary syndromes. There was an increase in the aortic and peripheral atherosclerosis that results in aortic aneurysms. [7] Oxidative stress due to exposure to tobacco smoke leads to chronic obstructive pulmonary disease. Smoking causes DNA damage in germ cells and thus lead to male infertility and defects in off springs. Smoking is also associated with cleft lip and palate, pre term birth and also miscarriages.[4] It was established that smoking during pregnancy is a risk factor for oral clefts and mothers who smoke during pregnancy have an increased risk of having a baby with cleft lip and palate [4, 8].

Second Hand Smoke

Second hand smoke is also known as environmental tobacco smoke, is formed from the burning of cigarettes and other tobacco products and also from smoke exhaled by the smoker. The smoke that passes into the environment from the smouldering cigarette between puffs is the main contributor to environmental smoke. The term environmental tobacco smoke is often avoided, as it implies that tobacco smoke may be treated as ambient or background. Approximately more of the smoke generated is sidestream smoke which arises from the smouldering end of the cigarette. Smoke emitted from mouth during each puff also contributes to second hand smoke. Components of the second-hand smoke are released into the environment and transported through the air [9, 10].

Third hand smoke results from residual tobacco smoke pollutants that get attach to surfaces, the clothing and hair of smokers; to dust in indoor environment and furnishings [6].

Composition Of Secondhand Smoke

Composition of chemicals in side-stream smoke is almost similar among all types of cigarettes including filtered, unfiltered, regular, low nicotine, low tar cigarettes and also among different brands. Composition of side stream and mainstream smoke are almost same qualitatively but thereexistsubstantial quantitative differences because the chemicals emitted in tobacco smoke change with the extent of combustion, temperature, oxygen concentration andpH. Most of the compounds from cigarettes emitted in mainstream smoke are comparatively lesser amounts than in side stream smoke mass of benzene, 4-aminobiphenyl, nicotine, total PAH in sidestream smoke was higher compared with mainstream smoke. On average non-smokers exposed to passive smoke have about 1% the cotinine as smokers and about 14% as much 4-aminobiphenyl adhered to their haemoglobin [11].

Health Effects Of Passive Smoking

It was reported in a systematic review that there exists a positive relationship between passive smoke and the risk of invasive meningococcal disease in children, cervical cancer, Neisseria meningitidis carriage, Streptococcus pneumoniae carriage, lower respiratory infections in infancy, food allergy, childhood asthma, lung cancer, stroke, allergic rhinitis and allergic dermatitis [12].

A causal relationship was found between exposure of mothers to second hand smoke during pregnancy and a small reduction in birth weight. [10] Preterm birth is the major cause of neonatal deaths and is associated with various infant morbidities, such as acute respiratory illness, neurological handicaps, gastrointestinal and immunologic deficits, and chronic diseases, that can continue into adulthood. [13] Several factors are believed to predispose women to preterm delivery, including individual-level behavioural and psychological factors, environmental exposure, medical conditions, infertility treatments socio-demographic and biological factors. [14]

Exposure to second hand smoke is significantly associated with increased risk of cardiovascular disease incidence and mortality [15] Passive smoking decreases the ability of the blood to deliver oxygen to the heart and compromises the ability of the myocardium to use oxygen to produce adenosine triphosphate and is manifested as reduction in exercise capability among those exposed to second hand smoke. There is an increase in the activity of platelets, acceleration in the atherosclerosis, increases tissue damage following myocardial infarction. The effects of passive smoke on the cardiovascular system are caused by the effects of nicotine, carbon monoxide, polycyclic aromatic hydrocarbons. [16] A study that reported the cardiovascular events among children exposed to passive smoking revealed that passive smoking may cause unfavourable high-density lipoprotein levels and deteriorated vascular function in children. [17]

Tobacco Control

Interventions commonly used to facilitate tobacco cessation are behaviour counselling and pharmacological intervention. Counselling can be either individual face to face advises or through the telephone from the health care professionals and through community awareness programs. Warnings from health care professionals are well accepted by the tobacco user and there is an increase in the quit rate. Pharmacological treatment of tobacco cessation includes nicotine replacement therapy which is available as nicotine gums, nicotine patches, lozenges, inhalers and nasal spray. Bupropion and varenicline are available as prescription medicines. Longer duration of treatment is needed for highly addicted tobacco users, and mostly the duration of treatment may extend for three months.[18]

WHO Framework Convention on Tobacco Control (FCTC) aims to lower detrimental tobacco consumption. The treaty came into effect on 27 February 2005. [19] First national legislation banning indoor smoking in all public places was introduced in 2004 in Ireland, to protect non-smokers from the harmful health effects of exposure to second hand smoke. Another reason was to provide a supportive environment for people who want to stop smoking.[1] Various initiatives have been taken by the Indian Government for tobacco control. India signed world Health Organisation Framework Convention on Tobacco Control treaty in the year 2004 and Cigarette and other tobacco products act was enacted. The National Tobacco Control Programme is executed in 42 districts of twenty-one states. [20]

Conclusion

WHO FCTC concluded that 100% smoke-free environments are the most effective method to protect people's health from the harmful effects of environmental smoke. The most vulnerable

population to get exposed are middle aged and young people. Non-smokers are to be protected from the ill effects of passive smoke as they have been exposed to harmful chemicals. Effective cessation interventions to be followed all over the world and smoking ban in public places is one of the effective ways to reduce the exposure to passive smoke and awareness about the passive smoking to be reinforced by all the ways through community awareness programs.

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