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Impact of Cigarette Smoking on Health

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Abstract

Smoking is the most common significant preventable risk factor for diseases, disabilities and death in the world. Nicotine dependence is a chronic, relapsing disorder that typically emerges during adolescence, prior to eighteen yrs of age. All tobacco products contain nicotine, which is quickly absorbed in the lungs, mouth and nose. Nicotine from tobacco smoke is readily absorbed via the pulmonary alveolar circulation and is delivered across the blood-brain barrier within ten to twenty seconds of inhalation. An addictive substance, nicotine displays positive reward-reinforcing properties, as reflected by the compulsive drug-seeking behaviour seen in certain smokers, and the appearance of an abstinence syndrome marked by withdrawal symptoms and craving after cessation of exposure. Tobacco-related deaths and disabilities are on elevates worldwide, because of continued use of tobacco (mainly cigarettes). Tobacco use has reached epidemic proportions in many advancing countries, while steady use continues in industrialized nations. Smoking is both physiologically and psychologically addictive, making it extremely difficult to quit even if the desire to do so is strong.

Keywords: Cigarette smoking; Health; Impact; Nicotine

Introduction

Cigarette smoking is the most common type of tobacco use [1]. Smoking is the most common significant preventable risk factor for diseases, disabilities and death in the world [2]. Smoking is nowadays accelerating readily throughout the advancing world and is one of the biggest challenges to recent and future world health [3]. The most common rationales of cigarette smokers provide for smoking is stress relief and enjoyment, but the main behind the scenes reason is nicotine dependence. Nicotine acts in the midbrain, creating impulses to smoke in the face of stimuli correlated with smoking. Consequent alters in brain chemistry also generate "nicotine hunger" when a smoker goes without nicotine [4]. Nicotine dependence is a chronic, relapsing disorder that typically emerges during adolescence, prior to eighteen yrs of age [5]. Nicotine addiction, like that of other medications, involves psychological, behavioral, social, and physical dependencies. All tobacco products contain nicotine, which is quickly absorbed in the lungs, mouth and nose. Nicotine from tobacco smoke is readily absorbed via the pulmonary alveolar circulation and is delivered across the blood-brain barrier within ten to twenty seconds of inhalation. An addictive substance, nicotine displays positive reward-reinforcing properties, as reflected by the compulsive drug-seeking behaviour seen in certain smokers, and the appearance of an abstinence syndrome marked by withdrawal symptoms and craving after cessation of exposure. Nicotine binds to cholinergic nicotinic receptors in the brain, autonomic ganglia and neuromuscular junctions, of which the central neuronal receptors are most relevant to the drug's behavioural effects [6, 7]. Nicotine acts on the nicotinic receptors in the central nervous system, which eventually leads to release of the neurotransmitters dopamine, serotonin, norepinephrine, and acetylcholine. The elevation in neurotransmitters is considered to generate the rewarding effects of nicotine such as pleasure, elevated performance, ameliorated memory, and decrement in tension and anxiety [8]. Nicotinic receptor activation by nicotine facilitates the release of various neurotransmitters, involving acetylcholine, noradrenaline, dopamine, serotonin, beta-endorphin, and gamma-aminobutyric acid. Dopamine acting through the dopaminergic mesolimbic pathway has been implicated in the behavioural reinforcing effects of nicotine. Chronic or repeated exposure to nicotine results in sensitization to

its effects on dopamine release; this sensitization of mesolimbic pathways may be of relevance to the development of nicotine-craving behaviour. Chronic exposure to nicotine also causes nicotinic receptor desensitization and compensatory receptor up-regulation (i.e. elevate in nicotinic receptor density), which may responsible for tolerance to the psychopharmacological effects of nicotine [9, 10]. Smoking is clearly linked to a higher risk of nearly all forms of cardiovascular disease, involving myocardial infarction, ischemic stroke and bleeding into the brain (i.e., hemorrhagic stroke), congestive heart failure, and narrowing of the arteries in the extremities (i.e., peripheral arterial disease) [11]. Smoking contributes too many of the health challenges leading to hospitalization, especially vascular disease, respiratory illness and many cancers. Additionally, smoking elevates the risk correlated with hospitalizations for surgical procedures. Hospitalization, particularly for a tobacco-related illness, may boost receptivity to smoking cessation messages by elevating perceived vulnerability, a so-called 'teachable moment'. Illness also brings smokers to the healthcare setting, where they have contact with health professionals who can provide a smoking cessation message or intervention. Additionally, procedures such as coronary arteriography that provide detail of the patient's cardiac status may minimize subsequent denial of cardiac risk by the patient [12-14]. Tobacco-related deaths and disabilities are on elevates worldwide, because of continued use of tobacco (mainly cigarettes). Tobacco use has reached epidemic proportions in many advancing countries, while steady use continues in industrialized nations [15]. Exposure to secondhand smoke by nonsmokers elevates the risk for coronary heart disease and lung cancer. Infants are particularly affected by secondhand smoke, with exposure elevating their risk for a variety of health problems such as lower respiratory tract infections and middle ear effusions. Additionally, women who smoke during pregnancy place the fetus at risk for preterm delivery, low birth weight, miscarriage, and sudden infant death syndrome [16]. Tobacco smoking affects multiple organ systems resulting in numerous so-called tobacco-related diseases. The well-known health risks in tobacco smoking pertain to diseases of the respiratory tract such as COPD and cancer, especially lung cancer and cancers of the larynx and tongue [17]. Damage in the lung, primary target of inhaled smoke, can be explained by the direct chemical exposure to cigarette smoke, but effects causing chronic diseases in other organ systems are likely to be the result of indirect consequences of the exposure [18]. Smoking is both physiologically and psychologically addictive, making it extremely difficult to quit even if the desire to do so is strong [19].

Conclusion

Smoking is now accelerating rapidly throughout the advancing world and is one of the biggest challenges to recent and future world health. The most common rationales of cigarette smokers give for smoking is stress relief and enjoyment, but the main behind the scenes reason is nicotine dependence. Nicotine acts in the midbrain, creating impulses to smoke in the face of stimuli correlated with smoking. Consequent changes in brain chemistry also produce “nicotine hunger” when a smoker goes without nicotine. Tobacco-related deaths and disabilities are on elevates worldwide, because of continued use of tobacco (mainly cigarettes). Tobacco use has reached epidemic proportions in many advancing countries, while steady use continues in industrialized nations.

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Competing interests

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