Cigarette smoking is frequently described as the most common preventable cause of death. According to the World Health Organization (WHO), by the end of the 21st century one billion people will die of smoking-related diseases, cancer will be the number one killer worldwide by 2010, and by 2030 tobacco smoking will be responsible for 8 million deaths per year [1]. These grim forecasts stem primarily from the widespread tobacco consumption mainly in Asia and Africa. Cigarette smoke contains thousands of toxic chemicals many of which are carcinogenic, prothrombotic, and/or atherogenic. The destructive effects of smoking harm virtually every organ-system in the body. In addition to lung cancer, smoking increases the risk of a vast array of diseases including other cancers (gastroesophageal and nasopharyngeal), respiratory tract infections, chronic obstructive pulmonary disease (COPD), stroke, coronary artery disease, aneurysm, peripheral vascular disease, psoriasis, sudden infant death syndrome (SIDS), infertility, and sexual dysfunction.

In the United States the number of smokers has steadily declined over the past twenty years to <25% of the adult population. This was the result of intense public awareness programmes, higher taxes, and smoking bans in public places. These measures were fueled in part by dramatic revelations regarding the deliberate recruitment by the tobacco companies of teenagers into the ranks of nicotine addicts through targeted, misleading advertisement campaigns. However, the alarmingly high number of smokers in the developing countries particularly in China, India, and the Arab countries, either remains high or is getting higher.

More surprising is the smoking prevalence among physicians in different parts of the world. A 1995 study in Greece found between 40 and 55% of physicians smoked regularly more than 20 cigarettes per day [2]. In Alexandria (Egypt), approximately 50% of physicians still smoke [3] today. In Jordan's largest tertiary care hospital, 44% of internists and 75% of the emergency department's physicians still smoke regularly; fortunately none of the pulmonologists in this hospital smokes [4]. However, in Poland approximately 10% of pulmonologist still smoke [5]. In northern Italy [6], smoking prevalence among general practitioner was found to be around 22% in 2006, and it has declined dramatically in Croatia (<20%), Turkey (<15%), and New Zealand (<15%) [7]. I am not aware of any published surveys or studies dealing with the prevalence of smoking among Libyan physicians and other healthcare workers, but anecdotal reports suggest that the habit is common in Libyan hospitals. However, some interesting data concerning smoking prevalence and attitude toward various forms of tobacco consumption among Libyan students have been recently published in a correspondence to this journal [8].

Physicians and healthcare professionals in general must play an active role in patient education and in establishing effective tobacco control policies. Smoking prevalence among physicians is an extremely important issue because there is evidence that the smoking status of physicians significantly influences their attitude toward smoking cessation and their ability to initiate and effectively pursue patient counseling on smoking [9]. Needless to say those physicians who still smoke should not rest until they have successfully kicked the habit. It is also imperative that the medical school curricula include extensive and repeated coverage of the subject, and that a national smoking cessation program be designed and implemented. The long-term rewards of such programs can not be underestimated both in terms of public health and national economy. In addition, every physician should make it a duty to follow up on initial patient consultation and make smoking cessation a topic of a brief and pointed discussion in every patient visit in order to reinforce the message and provide the moral support that patients are known to value highly.

Some surveys showed that <30% of physicians believed in the utility of pharmacologic intervention in smoking cessation; this suggests that physicians have limited knowledge in this area perhaps due to insufficient exposure to the more recent literature. Patient education coupled with direct counseling and pharmacotherapy has proved effective in achieving complete nicotine independence. In the following, I summarize the major pharmacotherapeutic interventions that are often used to help smokers overcome the consequences of nicotine withdrawal (anxiety, irritability, and the inability to concentrate). It should be noted that the rate of success of pharmacotherapy is highly dependent on social/emotional support and consistent, repeated face-to-face counseling by physicians and other healthcare professionals. Weight gain is often a side effect of smoking cessation, but it can be effectively controlled through dietary changes and exercise.

**Nicotine Replacement Therapy (NRT)**

Although cigarette smoke delivers thousands of compounds into the smoker's lungs, its addictive properties are attributed almost entirely to nicotine. Nicotine binds to specific nicotinic acetylcholine receptors (nAChR) throughout the brain and in autonomic ganglia. It also binds to receptors in the nigrostriatal and mesolimbic dopaminergic neurons. It triggers the release of many neurotransmitters and hormones, and like cocaine and amphetamine, nicotine is a strong stimulant of the...
dopamine reward pathway in the midbrain. The development of nicotine dependence is thought to be related to stimulation of the dopamine projections to the nucleus accumbens. Nicotine also enhances the smoker’s level of vigilance and ability to concentrate and react to stressful situations through its action on the locus ceruleus in the midbrain [9].

Breaking the cycle of dependency is the main challenge in smoking cessation, and NRT is designed to alleviate the immediate difficulties posed by withdrawal symptoms as the ex-smoker begins to adapt to the lack of nicotine.

NRT products are now available in a variety of dosage forms including chewing gum, lozenges, transdermal patch, inhaler, and nasal spray. Dosing depends on the patient’s prior smoking habits and each product comes with full dosing guidelines. NRT may be problematic in patients susceptible to cardiac arrhythmias and must be used with caution.

**Bupropion** (150-mg sustained release tablets):

Bupropion is an antidepressant that acts by inhibiting the uptake of dopamine and norepinephrine by the neurons. Because bupropion lowers the seizure threshold, it should be used with caution in patients who have a history of seizures, bipolar disorder, or eating disorder, and in patients taking monoamine oxidase inhibitors (MAOIs). The therapy is usually started one week before quit date beginning with one tablet each morning for 3 days, then the dose is increased to one tablet every 12 hours. Therapy may be continued for 2 to 3 months depending on craving and withdrawal symptoms. Insomnia and dry mouth are the main side effects associated with the use of bupropion.

**Varenicline** (Chantix):

Although the exact mechanism responsible for the efficacy of varenicline in smoking cessation is unknown, the partial activation of a subtype of nAchRs may be involved. Thus, varenicline may help by occupying and partially activating the nicotinic receptors in the brain. Treatment starts one week before quit date with an initial dose of 0.5 mg once daily in the morning for 3 days, then 0.5 mg twice daily for 4 days, then 1 mg twice daily. Therapy may be continued for up to 3 months, and in the event of a relapse, it may be continued for 3 additional months. Side effects include nausea, sleep disturbances, and headache. A few patients experienced significant psychiatric symptoms including agitation, depression, and suicidal ideation/behaviour. Patients should be observed and therapy should be stopped if atypical behaviour is noted. Patients with pre-existing psychiatric illness should not be started on this medication.

**In summary**

Cigarette smoking poses a great, but preventable health risk and smoking prevalence is still unacceptably high among physicians and the general public. In view of the staggering cost of smoking in terms of human lives, physicians need to make every effort to quit smoking and help their patients do the same. In addition to consistent and repeated counseling, the proper use of pharmacotherapeutic agents such as nicotine replacement therapy, bupropion, and varenicline has proven very helpful in achieving complete nicotine independence for many patients. Furthermore, a nationwide multifarious programme dedicated to smoking cessation should be a top priority for the national health administration.

**References**