

Saving Sight in the Tobacco Pandemic

Dear Editor,

We read with interest the insightful editorial on “Singapore and the Tobacco Pandemic” by Lim.¹

We share the author’s view that an effective smoking cessation programme, which reconciles evidence-based interventional strategies with real-world clinical practice, is essential in our drive towards a “Nation of non-smokers”. However, it should also be emphasised that effective education of patients on the ills of tobacco use can often provide them with the initial impetus to quit smoking.

Epidemiologic data over the past decades have established cigarette smoking as a major preventable risk factor for many cardiovascular, respiratory and malignant diseases. Comparatively, the association between smoking and ocular diseases is less widely known.

There has long been compelling evidence of the link between smoking and age-related eye diseases such as cataract and age-related macular degeneration (AMD), 2 leading causes of blindness and visual impairment worldwide.² Studies have found that smokers are up to 3 times more likely to develop nuclear sclerotic type cataract than non-smokers. The risk of cataract development is further increased with the number of pack-years smoked.²

Similarly, smoking increases the risk of AMD and its subtypes. It is, in fact, the most important modifiable risk factor of AMD. Both previous and current smokers are at risk of developing AMD 5 to 10 years earlier than non-smokers, respectively.³ Male smokers may be at higher risks of developing non-exudative AMD, whilst female smokers are more likely to progress to advanced AMD.² Very recently, in line with findings in western populations, the Singapore Malay Eye Study (SiMES) also found that current smokers were significantly more likely to have late AMD [odds ratio (OR), 3.79]. This association was strongest among those who currently smoked more than 5 packs of cigarettes per week (OR, 9.35).⁴

Cigarette smoking induces tissue ischaemia and accelerates atherosclerosis through various biochemical and cellular mechanisms. The deleterious effects of smoking on systemic vasculature and blood flow as seen in coronary artery disease and cerebrovascular disease are also implicated in many ischaemic and thromboembolic diseases of the eye. Studies have suggested an increased risk of retinal ischaemia, amaurosis fugax, anterior ischaemic optic neuropathy and idiopathic ophthalmoplegia with smoking, mainly attributed to smoking-induced ischaemia

and atherosclerotic plaque formation with resultant vascular compromise.² Local data from the SiMES showed an overall prevalence of retinal emboli of 0.6% in the Malay population, for which cigarette smoking was identified as a major risk factor (OR, 5.96), along with elevated total cholesterol, low-density lipoprotein cholesterol and a self-reported history of angina.⁵

Several other eye diseases, such as Graves ophthalmopathy, conjunctival intra-epithelial neoplasia and tobacco amblyopia (now rare), join the growing list of smoking-associated ocular morbidities.²

Of particular note, non-smokers are not spared from the ocular side-effects of environmental tobacco smoke (ETS) exposure too. The noxious gases, fumes, airborne chemicals and photochemical oxidants which originate from tobacco smoke are a potent cause of ocular irritation. Exposure of the highly-sensitive conjunctiva mucosa to such elements may result in severe discomfort and pungent sensations of the eye. It has also been suggested that long-term exposure may result in metaplastic changes in the ocular mucous membranes.² Although there is currently scarce literature on the role of ETS (as compared with active smoking) in major eye diseases, the harmful effects of such a wide-scale environment exposure are of great concern.

In all, smoking is a leading cause of disease, disability and premature death. The spectrum of smoking-related eye diseases and the associated risk of blindness augment the existing arguments against smoking. In fact, studies have shown that although the awareness of the risk of blindness from smoking may be low, the fear of blindness can be as compelling a motivation to quit as the fear of lung cancer, heart disease and stroke.⁶

Singapore has come a long way in incorporating the novel message of “smoking causes blindness” as part of the overall strategy in our anti-smoking campaign. Since 2006, the Health Promotion Board has launched several initiatives to raise the awareness of smoking as a cause of blindness, not only amongst members of the general public but also within the healthcare fraternity.⁷ Notable ventures include smoking cessation training for primary eye care professionals, such as optometrists and opticians, such that they can better advise at-risk patients in their practice; and various community outreach events to educate the public on the association between smoking and eye disorders.

We strongly urge fellow healthcare professionals to join us in this long-term campaign against smoking-related blindness.

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