

E-CIGARETTES: A GATEWAY TO NICOTINE ADDICTION?

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Tobacco industry has a long history of bringing various devices in order to keep their deadly business going; from rolled cigarettes, cigars, filtered cigarettes, light cigarettes, shisha and now to Electronic Cigarettes. E-cigarette are a class of products which deliver nicotine-containing aerosol to a user by heating a solution typically comprised of propylene glycol and/or glycerin (glycerin), nicotine and flavoring agents. E. cig have four parts: the battery, the heating element, the vaporizing chamber, and the solution cartridge.

The use of E. cig is increasing all over the world including in the developing countries like Pakistan. Recent data from USA indicates that e-cigarette use by both high school and junior high students has increased, and reportedly over a quarter of a million never-smoking youths had tried e-cigarette by 2013¹. Children and young adults are trying e-cigarette on an experimental basis without intending to replace traditional cigarettes or to start a pattern of regular usage. College students often use e-cigarette as replacements for traditional cigarettes either as a "safer alternative" or for experimentation².

E-cigarette are widely advertised in Pakistan through electronic and print media as an aid to quitting smoking or as a safe alternate to smoking traditional cigarettes. Many shops and supermarkets in major cities of Pakistan like Karachi, Lahore and Islamabad are selling e-cigarette to its customers without any age restrictions. In the absences of any regulation controlling e-cigarette, many tobacco companies are freely marketing these new tobacco products to Pakistani youth.

World scientific community is still divided on the safety of these new nicotine delivery devices. Those who are actively promoting this as a harm reduction strategy gives the argument that e-cigarette deliver much less toxins compared to traditional cigarettes and therefore a safer alternate to conventional cigarettes³.

Public health experts however says that e-cigarette tend to "normalize" smoking as a behavior in the society, and may actually encourage smoking. The published data on e-cigarettes for smoking reduction or cessations are conflicting. Many trials, have not shown a benefit of e-cigarette use in smoking cessation. E-cigarette are not approved as an aid to smoking cessation by any international body such as FDA or WHO nor it has been found to be superior to currently approved products for smoking cessation such as NRT, Bupropion or Varenicline⁴.

There is a serious concern that dual use of e-cigarette and regular cigarettes is the main pattern of use, and this might be associated with increased nicotine dependence⁵. In one study among middle school and high school students, dual use was found in 61%-81% of users⁶.

Most e-cigarette contains large concentrations of propylene glycol, which is a known irritant when inhaled. The testing of some of these products also suggests the presence of other toxic chemicals, aside from nicotine. In addition, use of these products, when they contain nicotine, can pose a risk for nicotine poisoning. If a child of 30 kgs of weight swallows the contents of a nicotine cartridge of 24 mg this could cause acute nicotine poisoning that most likely would cause his/her death.

Many poison centers all over the world have received increasing number of calls in recent years of nicotine poisoning from e-cigarette accidental ingestion of liquid by small children.

Concerns have also been raised on the emissions of toxins from e-cigarette to indoor air thus endangering the health of others present in the room⁷. Nicotine, volatile organic compounds, heavy metals, and particle irritants are risks to lungs and other vital organs. There are several documented acute adverse effects on the lungs reported in the literature including eosinophilic pneu-

monia, lupoid pneumonia and bronchiolitis⁸. There are no long term studies available on the safety of e-cigarette and their adverse health effects. E-cigarette use can increase the heart rate and blood pressure and has the potential to cause cardiac events and arrhythmias in individuals with or at risk for cardiac disease⁹.

The Tobacco Control Committee of the American Thoracic Society (ATS), in conjunction with the Forum of International Medical Societies, issued this statement last year: "As a precaution, electronic nicotine delivery devices should be restricted or banned until more information about their safety is available." The ATS does not endorse e-cigarette as a smoking cessation aid, noting the lack of FDA approval¹⁰. The American Heart Association (AHA) in a statement said that e-cigarette use has the potential to renormalize smoking behavior, sustain dual use, and initiate or maintain nicotine addiction. AHA finds the available evidence insufficient to promote e-cigarette as a smoking cessation aid¹¹.

Many smokers are now visiting health professionals in the country and asking questions related to this new product. Some are concerned on the safety of these e-cigarette and others want to know if they could use e-cigarette as a harm reduction strategy or as an aid to smoking cessation.

There is a need to educate the public regarding e-cigarette. Pakistan Chest Society should issue a policy statement in line with the recommendations of other international bodies. The government must bring laws and include e-cigarette as a tobacco product and prohibit its marketing and sale to "under 18" till the time we have more scientific information available on these nicotine delivery devices. The attempt by the tobacco industry to get permission for using e-cigarette at public places such as restaurants and shopping centers must be condemned. Government must ensure that PIA and other private airlines do not allow the use of e-cigarette during air travel.

Lastly we need to remind ourselves that commercial cigarettes were introduced in 1865 but it was several decades later in 1950 when Sir Richard Doll's landmark study came linking cigarettes to lung cancer¹². We need to wait for more evidence before accepting e-cigarette as a harm reducing strategy or as an aid to smoking cessation. We also cannot forget that not that long ago tobacco industry declared "filtered cigarettes" as "safe" for human health!!!

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