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Suresh A.

IMPLICATIONS OF E-CIGARETTE USAGE IN TEENAGERS, YOUNG ADULTS AND EXPECTANT MOTHERS

Tutor: senior lecturer Aliakseyeva A.S.
Department of Outpatient Therapy
Belarusian State Medical University, Minsk

According to recent statistics, the predicted annual growth rate of e-cigarette usage will reach 8.46% (2024–2028). It's currently estimated to be a market of 38.8 million US dollars. The potent component, *nicotine,* is highly addictive, causes long-term multi-system organ damage, and also increases the risk of developing cancer.

To indicate the multi-system organ damage associated with vaping in teenagers, young adults, and pregnant mothers.

Vaping is considered the modern replacement for smoking. It comprises different components like nicotine, carcinogens, diacetyl, heavy metals, cadmium flavourings, etc. that affect multiple organs. According to *Wittenberg, Wolfman et al. (2020)* pure nicotine binds to the *nicotinic acetylcholine receptors (nAChRs),* activating the mesolimbic reward system, leading to dopamine release and addiction. The immediate pleasure experienced while vaping and the addictive properties of nicotine make it a popular choice amongst young adults. It has been noted in several studies that vaping leads to increased adverse effects on the brain's development up to the early 20s.

The main cause of concern is the oxidative stress caused by e-cigarette aerosols, liquids, etc. that hampers the growth of neurons and circuits in the brain, affecting neurobehavioral activity and permanently impairing memory, learning, attention span, and impulse control functions of the brain. This exposes the patient to an increased risk of anoxic brain trauma, restlessness, tremors, dizziness, anxiety, confusion, seizures, permanent mood disorders, and stroke. It also affects the eyes, mouth, throat, lungs, heart, peripheral vessels, immune system, stomach, and intestines and causes: blurry vision, irritation, coughing, gum disease, wheezing, shallow breathing, COPD, CAD, high blood pressure, heart attack, decreased immunity, and also increases the risk of developing cancer.

In pregnant women, studies have shown that nicotine crosses the placenta, accumulates in the foetal fluids and neuronal tissues, and causes vasoconstriction of the uteroplacental blood vessels. *Kondo, Nakano et al.* (2019) also emphasized on the increased risk of diabetes mellitus development due to impaired glucose homeostasis and hypertension. Perinatal nicotinic exposure disrupts the neurotransmitter systems, alters DNA methylation and metabolic pathways, causes inflammation of the hippocampus, impairs lung growth, alters alveolar size, and causes dose-dependent cardiac defects, among other problems. An increase in the incidence of sudden infant death syndrome,

The safe limit remains undetermined in electronic devices due to their variety; hence, in schools, universities, during outpatient visits, school and university counselling sessions, via social media, awareness drives, campaigns, etc., it's crucial to inform the public regarding the long-term deleterious effects of using electronic smoking devices.