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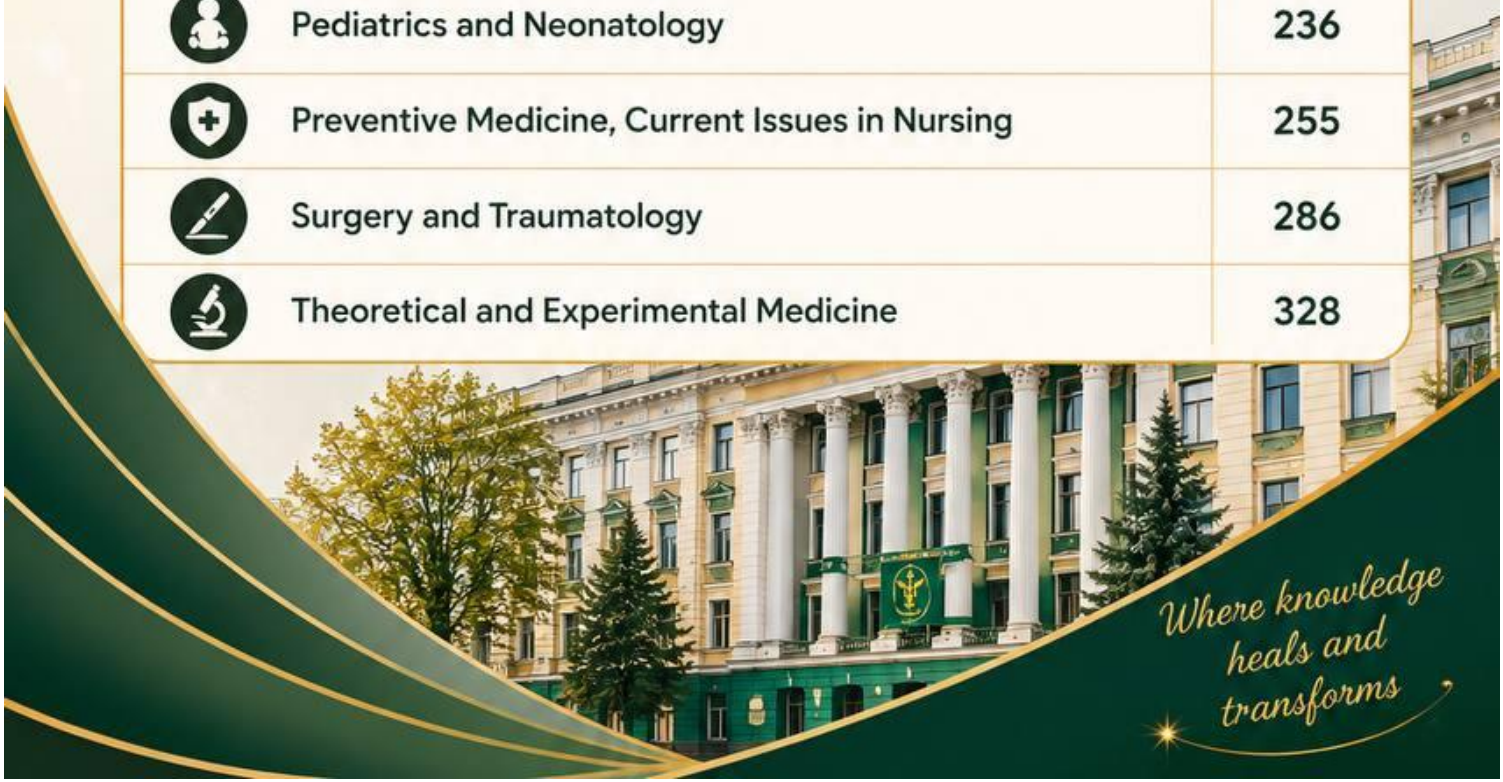

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PROGNOSTIC EVALUATION OF CYTOMORPHOLOGICAL CHANGES IN THE ORAL MUCOSA AMONG USERS OF ELECTRONIC NICOTINE DELIVERY SYSTEMS (VAPING).

Kharkiv, Ukraine

Kharkiv National Medical University

Department of General and Clinical Pathological Physiology named after D.O. Alpern

Scientific advisor : G. Sakal, MD, PhD, Associate Professor

Introduction. Rapid integration of electronic nicotine delivery systems (ENDS) into youth lifestyle necessitates studying their impact on target tissues. ENDS heat liquid into a fine aerosol, which according to WHO (2025) is used by 100 million people globally, including 15 million adolescents. Thermal destruction of glycerin and propylene glycol releases toxic acrolein, formaldehyde, and acetaldehyde. These compounds initiate oxidative stress, DNA damage, and disrupt epithelial cytoskeletal proteins. Long-term ENDS use at a young age creates prerequisites for early epithelial dysplasia and aggressive oncopathology. Objective. To provide a prognostic evaluation of pathological changes in the oral mucosa (OM) among active ENDS users through clinical-anamnestic analysis and study of cytomorphological tissue transformation patterns. Materials and methods. A Google Forms survey was conducted among 55 respondents (aged 17-46). Parameters included vaping history, intensity, subjective complaints, and preventive behavior. Results were interpreted through scientific literature analysis using variational statistics. Results and Discussion. Collected findings demonstrated a massive shift toward vaping: 47.3% use ENDS regularly, and 70% have over 3 years of history.

Exposure intensity is alarming: 52.5% vape throughout the day, and 35% conduct 5-8 sessions daily, putting oral tissues under constant thermal injury and chemical stress. Clinical findings revealed high rates of secretory and sensory disorders. Xerostomia occurs in 83% of users (10%-often, 35%-sometimes) due to aerosol hyperosmolarity, with 35% feeling dryness immediately post-vaping. Remarkably, 88.5% reported "vaper's tongue" (taste dysfunction), indicating peripheral

neurotoxic effects and taste receptor damage. Crucially, while 83% experience objective dry mouth, only 5% noticed visual mucosal changes. This severe dissonance proves the insidious, subclinical nature of tissue restructuring. Literature confirms that such conditions involve nuclear defects, micronuclei, karyopyknosis, and karyorrhexis, indicating genetic instability and cell destruction. Combined with chronic periodontitis (9%) and poor dental compliance (25% visit only during symptoms), this dramatically accelerates the progression toward pre-cancerous leukoplakia.

Conclusions. Regular vapes users develop ongoing secretory (83%) and sensory (88.5%) issues. Process latency is the main danger: only 5% notice changes, while objective dysfunction occurs in the majority. Hidden damage is most conceming: constant heat exposure causes DNA damage and chromosomal instability.

Cytomorphology remains the "gold standard" for screening, catching cellular destruction before it becomes visible to the naked eye.