Habitual e-cigarette use associated with risk factors linked to increased cardiovascular risk

In a study published online by JAMA Cardiology, Holly R. Middlekauff, M.D., of the David Geffen School of Medicine, University of California, Los Angeles, and colleagues examined whether habitual users of electronic cigarettes (e-cigarettes) are more likely to have risk factors associated with increased cardiovascular risk. Electronic cigarettes, first marketed in the United States in 2006, have gained unprecedented popularity, especially among young people, but virtually nothing is known about their cardiovascular risks.

This study included 23 habitual e-cigarette users (used most days for a minimum of one year) and 19 non-e-cigarette user control participants between the ages of 21 and 45 years who met study criteria, which included no current tobacco cigarette smoking and no known health problems.

The researchers found that habitual e-cigarette users were more likely than the nonsmoking control participants to have increased cardiac sympathetic activity (increased adrenaline levels in the heart) and increased oxidative stress, known mechanisms by which tobacco cigarettes increase cardiovascular risk.

The authors write that these findings have critical implications for the long-term cardiac risks associated with habitual e-cigarette use and mandate a reexamination of aerosolized nicotine and its metabolites. "Nicotine, which is the major bioactive ingredient in e-cigarette aerosol, with its metabolites, may harbor unrecognized, sustained adverse physiologic effects that lead to an increased cardiovascular risk profile in habitual e-cigarette users."

The researchers note that they cannot confirm causality on the basis of a single, small study, and that further research into the potential adverse cardiovascular health effects of e-cigarettes is warranted.

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