Patterns of electronic-cigarette use, cigarette use, or dual use and asthma outcomes among adults with asthma

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Abstract

Objective

Adults with asthma who smoke cigarettes experience worse asthma outcomes compared to non-smokers. E-cigarettes may be a potential asthma trigger and negatively affect asthma outcomes but current research is underexplored. The objective of this study was to assess the association between current e-cigarette, cigarette, or dual use and asthma outcomes among adults with asthma.

Methods

This retrospective, cross-sectional study utilized 2014 – 2017 data from the National Health Interview Survey. Adults 18 years or older who reported currently having asthma were included in the study. Smoking status variables included current exclusive e-cigarette users, current exclusive cigarette users, current dual users of e-cigarettes and cigarettes, former users of cigarettes and current e-cigarette users, and non-users. Asthma outcomes of interest were asthma exacerbation within the past 12 months and having to visit the emergency department or urgent care (ER/ UC) within the past 12 months due to asthma. Appropriate sampling weights and variance estimation were accounted for pooling of the data. Descriptive statistics including weighted percentages were used to describe the sample. Smoking status and asthma outcomes were assessed using multivariate logistic regression models and expressed as odds ratios with 95% confidence intervals.

Results

The final sample included 10,578 adults with asthma. An asthma attack occurred in 43.3% of non-users, 47.3% of current exclusive cigarette users, 31.5% of current exclusive e-cigarette users, 47.1% of dual users, and 51.5% of former cigarette and current e-cigarette users. An asthma related ER or UC visit was reported by 11.7% of non-users, 13.7% of current exclusive cigarette users, 11.4% of dual users, and 7% of former cigarette and current e-cigarette users. Logistic regression models did not detect a significant relationship between smoking status and asthma outcomes.

Conclusions

Former cigarette and current e-cigarette users, and dual users had worse rates of asthma outcomes, however a significant relationship between smoking status and asthma outcomes was not detected in this study. Further investigation with a larger e-cigarette user sample size and smoking status frequency and duration is warranted.