Are Electronic Cigarettes the Solution to Smoking Cessation?

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INTRODUCTION

Smoking is the leading cause of preventable and premature death worldwide. Eighteen percent of adults in the United States smoke cigarettes, and nearly seventy percent of them want to stop. Several nicotine replacement therapies have been on the market since 1984. The most popular of the electronic nicotine devices is the electronic cigarette (e-cig). E-cigs are battery-operated devices that vaporize nicotine for inhalation. Since their introduction to the U.S. marketplace in 2007, e-cigs have sparked significant controversy, and remain unregulated by the FDA. Concerns exist as to whether they may lead to renormalization of smoking. E-cigs are advertised as a healthier, more cost-effective and a more socially acceptable alternative to conventional cigarettes. Additionally, they are marketed as an effective smoking cessation tool, despite the fact that existing studies have produced contradictory results.

Clinical Question: Among smokers, are electronic cigarettes more effective at leading to smoking cessation as compared to alternate smoking cessation therapies?

RESULTS

Study 1:

- Longitudinal study; surveys at baseline and follow-up. Measured quit attempts, reduction in number of cigarettes, & current abstinence.
- Positive association with e-cigs and quit attempts, but did not prove statistically significant. Statistically significant lower likelihood of reduced number of cigarettes and a negative correlation with abstinence.

Study 2:

- Longitudinal study; surveys at baseline and follow-up three years later. Measured smoking cessation and motivation to quit.
- Intensive use of e-cigs is strongly associated with a higher rate of smoking cessation compared to intermittent use or never using e-cigs.

Study 3:

- Randomized control trial conducted over 13 weeks investigating whether nicotine e-cig use resulted in abstinence.
- Nicotine e-cig use resulted in increased smoking abstinence at 6 months compared with use of patches or placebo e-cigs. Findings were not statistically significant due to lack of statistical power.

Study 4:

- Cross-sectional household surveys conducted monthly from July 2009-Feb 2014. Compared abstinence rates among smokers using 1 of 3 therapies: e-cigs, nicotine replacement therapy (NRT) bought over-the-counter (OTC), or no aid.
- E-cig users were more likely to be abstinence compared to those using NRT bought OTC or no aid.

COMMUNITY APPLICATION

Study 2: Characteristics and Outcomes by Level of E-Cig Use

Percentages based on sample size of 695 participants

<table>
<thead>
<tr>
<th>Gender</th>
<th>Non-use/trial</th>
<th>Intermittent use</th>
<th>Intensive use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>45.8</td>
<td>47.6</td>
<td>84.1</td>
</tr>
<tr>
<td>Female</td>
<td>54.2</td>
<td>52.4</td>
<td>15.9</td>
</tr>
</tbody>
</table>

Study 2: Reasons for Starting Electronic Cigarettes

Percentages based on sample size of 493 participants

- Where cigs not allowed: 31.1% of respondents reported that they had cigs not allowed.
- Exposure to others: 26.6% of respondents reported that they were exposed to others.
- To cut down: 20.4% of respondents reported that they cut down.
- To quit: 13.7% of respondents reported that they tried to quit.
- Smoking cessation: 9.8% of respondents reported that they bought over-the-counter.

CONCLUSION

Of the four studies represented, studies 2, 3, and 4 demonstrated a positive correlation of electronic cigarettes with smoking cessation. However, study 3 was not statistically significant and study 1 showed a negative correlation. Despite these varying results, each of these studies provide a framework for future research to further investigate this clinical question. Additionally, the safety of these devices has yet to be determined and remains a vital factor in future research as well.

REFERENCES


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