CARDIOVASCULAR EFFECTS OF E-CIGARETTES

American Heart Association Tobacco Regulation Center (ATRAC)

Aruni Bhatnagar, PhD
A variety of e-cigarettes are available in the market.
E-cigarette constituents

- Nicotine
- Propylene glycol
- Glycerol
- Aldehydes
- Fine Particulate Matter
- Flavors
E-cigarettes and Cardiovascular function
E-CIGARETTES AND BLOOD PRESSURE

• In young healthy nonsmokers, acute inhalation of e-cigarette aerosol increases both systolic and diastolic blood pressure and heart rate

• In habitual smokers - increased arterial blood pressure after e-cigarette use, even though less than conventional cigarettes

• In 3.5 years observational study, there was no changes in blood pressure in young users compared with healthy never smokers and non e-cigarette users
The acute sympathomimetic effect of e-cigarettes is attributable to the inhaled nicotine.
DAILY E-CIGARETTE USE IS ASSOCIATED WITH AN INCREASE IN RISK OF HAVING HAD A MYOCARDIAL INFARCTION

National Health Interview Survey

Are e-cigarettes reduced harm products?
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Harm depends on the level of exposure, which might increase with persistent e-cigarette use.

For conventional cigarettes, the dose response for cardiovascular mortality is non-linear.

Most of the risk of smoking is at low doses: 80% of the harm at <3 cigarettes/day.

Pope et al., *Circulation* (2009) 120:941
Current E-cigarette use

BRFSS 2016

Current E-cigarette use

BRFSS 2016

Normalization of smoking
Communicating Tobacco Issues

AHA Policy Statement

Electronic Cigarettes
A Policy Statement From the American Heart Association

Aruni Bhatnagar, PhD, FAHA, Chair; Laurie P. Whitsel, PhD; Kurt M. Ribisl, PhD;

ACOEM GUIDELINES

Guidance to Employers on Integrating E-Cigarettes/Electronic Nicotine Delivery Systems Into Tobacco Worksite Policy

Laurie P. Whitsel, PhD, Neal Benowitz, MD, Aruni Bhatnagar, PhD, FAHA, Chris Bullen, MBChB, PhD,

Viewpoints

Cardiovascular Perspective of the Promises and Perils of E-Cigarettes

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