

MCFIP - When polyethylene glycol (PEG) in non-flavored e-cigarettes and diacetyl (flavored products) come in contact with the endothelial cell lining of the vasculature (tunica intima), these hyperosmotic substances temporarily remove the “water” from the cells and prevent them from producing adequate levels of nitric oxide (the gasotransmitter vasodilator).

The middle layer of the vasculature (tunica media) is comprised of smooth muscle cells that produce hydrogen sulfide; the gasotransmitter vasoconstrictor.

CV outcomes outlined in this article are, with near certainty, being caused by the hyperosmotics in the e-cigarettes that disrupt the ability of the endothelial cells to produce adequate levels of nitric oxide; the vasodilator.

Summary

Imbalances between the vasodilator and the vasoconstrictor are creating CV disruptions.

<https://medicalxpress.com/news/2019-01-e-cigarettes-linked-higher-heart-diseased.html>

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E-cigarettes linked to higher risk of stroke, heart attack, diseased arteries

by [American Heart Association](#)

Using e-cigarettes increases your odds of having a stroke, heart attack and coronary heart disease, according to preliminary research to be presented in Honolulu at the American Stroke Association's International Stroke Conference 2019.

In 2016, 3.2 percent of U.S. adults and 11.3 percent of [high school students](#) reported using e-cigarettes in the preceding 30 days. Its use among [young people](#) increased by 900 percent between 2011 and 2015.

In the largest study to date examining e-cigarettes and stroke, researchers tapped a database of 400,000 respondents. That database, the 2016 [behavioral risk factor surveillance system](#) (BRFSS) survey, collected data from residents in all 50 states about their health-related risk behaviors, chronic health conditions and use of preventive services.

"Compared with non-users, [e-cigarette](#) users were younger, had a lower body mass index and a lower rate of diabetes," said Paul M. Ndunda, M.D., the study's author and an assistant professor in the School of Medicine at the University of Kansas in Wichita.

Some 66,795 respondents reported ever regularly using e-cigarettes. The control group was the 343,856 respondents who reported having never used e-cigarettes. Odds ratios were calculated using logistic regression analysis. Researchers found compared with non-users, e-cigarette users had:

- 71 percent higher risk of stroke;
- 59 percent higher risk of [heart attack](#) or angina;
- 40 percent higher risk of [coronary heart disease](#); and
- Double the rate of cigarette smoking.

They also found 4.2 percent of e-cigarette users reported having suffered a stroke. However, the study data did not show deaths attributable to e-cigarette use.

The American Heart Association cautions against the use of e-cigarettes, stating that e-cigarettes containing nicotine are tobacco products that should be subject to all laws that apply to these products. The Association also calls for strong new regulations to prevent access, sales and marketing of e-cigarettes to youth and for more research into the product's health impact.