Vaping Reduces Inflammatory Biomarkers, Compared to Smoking

By Chuck Dinerstein, MD, MBA — January 15, 2021

Remember vaping? Before COVID-19 took all the oxygen out of the room, vaping was a big fear. A new study shows that what we have claimed all along is true: vaping reduces inflammatory biomarkers associated with smoking tobacco.

Inhaling combustion products is always a bad idea. Ask a firefighter. So before jumping into this new study, let me be clear: vaping is a gateway to better health for those smoking cigarettes – it is harm reduction, not necessarily elimination.

The research, reported in the journal Circulation, used a study conducted in the US. The Population Assessment of Tobacco and Health (PATH) was administered in cycles beginning in 2013. The dataset is from this first cycle using data of participants' smoking habits along with blood samples. The researchers looked specifically at metabolites, biomarkers, of inflammation and oxidative stress – the culprits felt to underlie tobacco's harmful effects. In addition to the usual demographic data, there was specific information on the use or nonuse of tobacco, vaping, and cigarette smoking.
Results reflect findings for adults age 18 or older, where data on biomarkers and tobacco use were available – 7130 participants overall.

- 58.6% neither smoked nor used e-cigarettes – these are the nonusers
- 29.6% smoked exclusively
- 1.9% vaped exclusively
- 9.9% smoked and vaped – dual smokers
- Exclusive and dual smokers had the highest inflammatory and oxidative stress biomarkers relative to nonusers – no surprise there.
- Exclusive vapers had "significantly lower levels" except for C-reactive protein [THAN SMOKERS, I ASSUME]

While vaping inflammatory biomarkers were elevated compared to nonusers, those differences were not statistically significant. There was also no significant difference in the elevation of biomarkers between the exclusive smokers and dual smokers - the additive effect of e-cigarettes was low if present at all.

The bottom line, e-cigarettes appear to have little impact on inflammatory biomarkers, certainly not as great as smoking tobacco. As we have maintained, e-cigarettes reduce harm; we can quibble about eliminating harm another day. Dual-use smokers are the current target of concern, representing individuals that are "failing" to switch completely or that need those additional hits of nicotine. But this data suggests that regular cigarettes are the primary driver of harm. When it comes to e-cigarettes, perfection is the enemy of good. We agree with the author's conclusion that these results

"...highlight the importance of completely replacing cigarette smoking with e-cigarettes or quitting the use of both products for cigarette smokers to derive potential health benefits."

In a perfect world, we would prefer the latter, but it isn't an ideal world, so in the name of harm reduction, we accept e-cigarette use.

Source: Association of Cigarette and Electronic Cigarette Use Patterns With Levels of Inflammatory and Oxidative Stress Biomarkers Among US Adults Circulation DOI: 10.1161/CIRCULATIONAHA.120.051551
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