One of our readers [1] wrote to us about a recent article in Lancet regarding the role of alcohol in cardiovascular disease. That prompted us to take a look and here is what we found.

The study was a comparison of conventional epidemiologic data and data separated by a genetic alteration in Asians, the population being studied. When we drink alcohol, it is converted by enzymes into acetaldehyde and then into acetate which is further metabolized. But acetaldehyde “in sufficient concentrations” causes a flushing discomfort. Two genetic alterations decrease the conversion of acetaldehyde to acetone resulting in many Asians experiencing discomfort with drinking alcohol; as you might expect, those individuals don’t drink as much as others. This genetic alteration was used to stratify the study participants all of whom came from the China Kadoorie Biobank.

There were roughly 500,000 participants, with the usual demographic and health information recruited between 2004-2008 and followed for their outcomes of concern, heart disease, and stroke. About 5% of participants were resurveyed during the study, but the majority of information on the amount of alcohol came from self-reporting when participants were enrolled. The details of how that information was converted into grams of alcohol were contained in an appendix which I could not obtain. Our reader, who has lived in Asia reports that much of drinking involves spirits, more specifically rice whiskey and not all are commercially prepared making quantifying the alcohol intake problematic. So, in looking at the data remember that it pertains only to Asians, and to the impact of alcohol-based spirits, rather than wine or beer that contain other compounds.

• Drinking was predominantly confined to men, 33%; only 2% of women indicated they drank any
alcohol

- Presence of the stronger of two variants resulted in a sharp decline in drinking when compared to other individuals in the same geographic location. Only 1% were currently drinking averaging 3gm of alcohol weekly; 45% of those without the variant drank on average 157gm weekly. Incomplete penetrance of the variant resulted in values between these extremes. The second variant had a less powerful flushing response, and in those instances 32% were current drinkers, ingesting about 97 gms weekly. [2]

Take-away one. When something you eat, in this case, alcohol, makes you acutely uncomfortable you tend not to do it. In the second part of the study, the researchers compared a traditional epidemiologic approach creating groups based upon drinking patterns, with genetic stratification based on the presence and penetrance of the two genetic variants.

For increases in blood pressure, stroke, both hemorrhagic and ischemic, and for heart attacks and coronary disease overall, stratification by drinking pattern followed a U shaped curve, where a “moderate” amount of drinking was beneficial or protective, and abstinence or significant drinking resulted in harm. But when looking at the same population, stratified by the two genetic variants, the U shape disappeared, and no level of alcohol was beneficial. To be fair, small amounts were not terribly detrimental, and the additional risk was about 9-12%. And while the U shape disappeared, for heart disease the genetically stratified risk was either slightly protective, a 4% risk reduction for a heart attack, or somewhat detrimental, a 5% risk increase for coronary artery disease overall.

Now before reaching for a drink to settle your nerves lets recognize another limitation in the study, we have no information on the additional risk factors beyond age and smoking for any of the stratified groups. It is certainly possible that other genetic variants were present and clustered more in one group over another, and the same holds for phenotypic changes, like diabetes; we just don’t know. Take-away two, altering how you aggregate or stratify the population can change the epidemiologic patterns you detect or miss.

If you drink because you think alcoholic beverages are “superfoods” that will protect you from heart disease and stroke, this study suggests that you might be mistaken. In the meantime, if you do drink, then moderation remains the key – but you already knew that.

[1] I would like to take a moment to thank Mr. Senior for his interest and sharing his experiences. In our communication, he makes another important point, especially as GWAS and other epidemiologic studies based upon genetic profiles increase, these studies have a limited ability to generalize to the population at large. Moreover, as more mainstream research on topics impacted by cultural norms, like health, comes from the Middle and the Far East, many of the cultural assumptions underlying their work needs to be made explicit. The world is not a monoculture.
[2] For comparison there are 14 grams of alcohol in a 12-ounce beer, a 5-ounce glass of wine, and 1.5 ounces of 80 proof spirits.

Source: Conventional and genetic evidence on alcohol and vascular disease aetiology: a prospective study of 500 000 men and women in China Lancet DOI: 10.1016/S0140-6736(18)31772-0

Source URL: https://www.acsh.org/news/2019/04/26/glass-wine-day-does-it-keep-cardiologist-away-13979

Links