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Alcohol may increase risk of some types of stroke but not others

Light and moderate alcohol consumption of up to two drinks per day is associated with a lower risk of ischemic stroke but seems to have no effect on a person’s risk of hemorrhagic stroke, according to a study published in the open access journal *BMC Medicine*. High-to-heavy drinking was found to be associated with increased risk of all stroke types.

Researchers at Karolinska Institutet, Sweden, and University of Cambridge, UK, suggest that the divergent associations of alcohol consumption with different types of stroke may explain some of the inconsistent findings of previous studies which investigated the association between alcohol consumption and stroke but did not discriminate between different stroke types.

Dr. Susanna Larsson, lead author said: “This is the first study that combines the results from all available prospective studies on alcohol consumption and risk of hemorrhagic stroke subtypes. Our results showed that heavy drinkers were about 1.6 times more likely to suffer from intracerebral hemorrhage and 1.8 times more likely to suffer from subarachnoid hemorrhage. The association between heavy alcohol consumption and these two types of stroke was stronger than that for ischemic stroke.”

Ischemic stroke is caused by blood clots which block diseased or damaged cerebral arteries. Hemorrhagic stroke occurs when a weakened blood vessel, such as an aneurism, bursts and bleeds either within the brain (intracerebral) or – less commonly – into the space between two membranes that surround the brain (subarachnoid). The researchers suggest that different associations between alcohol consumption and type of stroke may have to do with the effects alcohol has on the human body.

Dr. Larsson explained: “Previous research has found an association between alcohol consumption and lower levels of fibrinogen – a protein in the body which helps the formation of blood clots. While this may explain the association between light to moderate alcohol consumption and lower ischemic stroke risk, the adverse effect of alcohol consumption on blood pressure – a major risk factor for stroke – may increase the risk of hemorrhagic stroke and outweigh any potential benefit”.

To examine the association of alcohol consumption with different stroke types, the researchers conducted a systematic review and meta-analysis of 25 prospective studies with data on ischemic stroke, intracerebral hemorrhage and subarachnoid hemorrhage. They also included data from the Cohort of Swedish Men and the Swedish Mammography Cohort, rendering a total sample of 18,289 ischemic stroke cases, 2,299 intracerebral hemorrhage cases and 1,164 subarachnoid hemorrhage cases.

Alcohol consumption across all studies was assessed with a questionnaire or by interview and standardized to drinks of alcohol. Exposure categories were light (<1 drink per day), moderate (1-2 drinks per day), high (2-4 drinks per day) and heavy (more than four drinks per day).

While this meta-analysis included a large sample size, allowing for associations between alcohol consumption and different stroke types to be estimated with relatively high accuracy across a wide range of alcohol consumption and in different subgroups, the authors caution that it is limited by its lack of individual patient data which prevented the same exposure categories to be used in all studies. Also, the possibility that the associations of light and moderate alcohol consumption with stroke risks have been overestimated due to the small sample sizes of some of the included studies cannot be ruled out.

Most of the studies included in this meta-analysis adjusted for major potential confounders such as age, sex, smoking, body mass index, and diabetes. However, observational studies can show a possible association between alcohol consumption and risk of different types of stroke, but they cannot show cause and effect because other factors may have impacted the results.

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