



“Could a cup of coffee a day keep the liver doctor away?”: One cup or two or more cups of coffee per day reduces the risk of death from cirrhosis

Goh GB, Chow WC, Wang R, Yuan JM, Koh WP. Coffee, alcohol and other beverages in relation to cirrhosis mortality: The Singapore Chinese Health Study. *Hepatology* 2014; 60: 661-9.

Coffee and tea are the most widely consumed caffeinated social stimulants throughout the world. About 90% of adults in the world consume caffeine daily. Caffeine increases mental alertness and cognitive performances such as athletic performance and reaction time. High dose caffeine can cause headache, anxiety, tremor, insomnia and jet lag. There is insufficient data for encouraging or discouraging routine caffeine consumption in the daily diet.

Two population-based studies (The National Health and Nutrition Examination Survey [NHANES] I and III) have reported that higher caffeine consumption (>2 cups per day) was associated with a lower risk of elevated ALT levels and a lower risk of chronic liver disease (1, 2). Previous studies showed that coffee drinking decreased the incidence of alcoholic and nonalcoholic cirrhosis (3), complications of cirrhosis (4), liver fibrosis (5) and hepatocellular cancer rate (6).

Some studies give us an idea about the benefits of coffee on liver diseases. An Italian study showed that patients with decompensated cirrhosis were less likely to consume coffee than matched controls (7). Studies in human hepatoma cell line has shown that coffee alters expression and activity of enzymes involved in xenobiotic metabolism (8). Cafestol and kahweol therapies protected mice from carbon tetrachloride hepatotoxicity by inhibiting cytochrome CYP 2E1 (9).

In the August 2014 issue of *Hepatology*, an interesting study of Goh and colleagues' (10) study was published. The study was composed of prospective population-based cohort of 63,275 middle-aged subjects between 45 and 74, living in Singapore. Researchers studied the association between consumption of coffee and its effect on cirrhosis mortality. Subjects who drank one or two or more cups per day were compared to non-daily coffee drinkers. An in-person interview was conducted

in the subject's home by a trained interviewer using a structured questionnaire. Dietary information, including alcohol, coffee, tea, and soft drink consumption was assessed by way of a 165-item survey. The patients were followed for nearly 15 years. There were 14,928 deaths (24%) and 114 (0.76%) of them were from liver cirrhosis. The mean age of death was 67 years. According to their results, consuming two or more cups of coffee per day reduced the mortality from liver cirrhosis caused by non-viral hepatitis by 66%. Coffee consumption was associated with a lower risk of death from cirrhosis, specifically for non-viral hepatitis related cirrhosis. Alcoholic and non-alcoholic liver diseases were the most common types of hepatitis in non-viral hepatitis related cirrhosis. Interestingly, coffee consumption was not related with mortality of cirrhosis caused by viral hepatitis B. They showed that black tea, green tea, fruit juices, soft drinks, caffeinated soda or any other sources of caffeine were not associated with the mortality (10).

The study of Goh et al. (10) is important as the first to demonstrate a difference between the effects of coffee on non-viral vs viral hepatitis related cirrhosis death. They showed the protective effect of coffee on non-viral hepatitis-related cirrhosis mortality. Compared to non-daily drinkers, subjects who drank one cup or two or more cups of coffee per day had a 43% and 54% reduction in risk of cirrhosis mortality. Coffee consumption has been proposed as a potential therapeutic agent. The protective association of coffee on liver disease remained significant after controlling for other factors known to affect fibrosis such as age, gender, race, body mass index and alcohol consumption. In contrast to coffee, daily alcoholic beverage drinkers also had strong dose-response relationship between increasing number of drinks per day and risk of cirrhosis mortality.

From the data so far we have, it is difficult to understand how coffee is playing a beneficial role in patients with liver disease. Coffee consumption appears to improve liver enzymes and is protective against complications of cirrhosis. It is not clear whether an ingredient of coffee, possibly a substance removed by the decaffeination process or even caffeine itself prevents the unhealthful

events. This study suggest the benefit of coffee on the oxidative stress and lipotoxicity pathway in liver diseases related to alcohol, non-alcoholic fatty liver disease, and possibly chronic hepatitis C. Likely coffee was not beneficial on chronic hepatitis B related cirrhotic mortality, since oxidative stress is not the predominant mechanism of damage in chronic hepatitis B. Also, some ingredients of coffee such as polyphenols and diterpenes down regulate proinflammatory and fibrogenic cytokines (11) that cause inhibition of stellate cell activation and collagen production.

Apples have a good claim to promote health. The idiom, “an apple a day keeps the doctor away,” is still recommended by cardiologists to prevent or delay vascular deaths such as heart attacks and strokes. In old English the word apple was used to describe “any fruit” that grew on a tree. It was Adam and Eve’s “forbidden special fruit”, which they ate in the Garden of Eden. One cannot imagine what a fruit it was. However, Goh and colleagues showed us that hepatologists’ recommended fruit should be “coffee”, at least a cup per day for cirrhotic patients. There is an old saying about Turkish coffee in Turkey; it goes like “Bir fincan kahvenin kırk yıl hatırı vardır” meaning that if one is offered a cup of coffee, he feels admiration for forty years to the person who offered the coffee. It means that the person who offers the coffee to be respected, honored, and remembered for a long time for the sake of the coffee. It is actually stating a kind of survival key as well. We believe coffee therapy fits very well for cirrhotic patients as it always works to start a “muhabbet” meaning long friendly conversation in Turkish, as well.

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