Coffee Tied to MI Risk in Younger Adults With Mild Hypertension

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LONDON, UK — In a study of 18-to-45-year-olds with untreated stage 1 hypertension, "moderate coffee drinkers" who drank one to three espressos a day were three times as likely to have a CV event (mostly a heart attack) within a decade as those who did not drink coffee[1].

Moreover, "heavy coffee drinkers" who drank four or more espressos a day were four times as likely to have a CV event as abstainers. These findings from the Hypertension and Ambulatory Recording Venetia Study (HARVEST) were presented as a poster at the European Society of Cardiology (ESC) 2015 Congress.

Dr Lucio Mos

Increasing coffee consumption was also tied to a greater likelihood of developing hypertension requiring treatment or developing prediabetes, lead author Dr Lucio Mos (Hospital of San Daniele del Friuli, Udine, Italy) told the press in a briefing.

"In this part of Italy, people only drink espresso, and American-[brewed] coffee and tea are not usual," he noted. One espresso has about 60 or 70 mg of caffeine in a small 1-oz (30-mL) cup, and perhaps surprising, in an 8-oz (237 mL) cup of weaker American-brewed coffee, "you have double the caffeine of an espresso," Mos explained to **heart*wire*** from Medscape.

"The take-home message is we think that coffee consumption should be reduced in young to middle-aged patients with [mild] hypertension . . . and no other cardiovascular risk factors," he added.

Comoderator Dr JR Gonzalez Juanatey (Hospital Clínico Universitario de Santiago, Santiago de Compostela, A Coruña, Spain) agreed with this clinical implication, adding that this was a well-performed, observational study. He suggested that coffee may act to increase sympathetic drive in younger patients.

Comoderator Dr Ian Graham (Trinity College, Dublin, Ireland) cautioned, however, that an observational study cannot show cause and effect, and "you would need a randomized trial to go from the hypothesis to the proof."

Does Coffee Help or Harm Heart Health in Hypertension?

The long-term cardiovascular and metabolic effects of coffee consumption in patients with hypertension remain controversial, Mos noted. The current study aimed to evaluate whether coffee drinking affected the risk of cardiovascular events, and if so, whether this was at least partly related to its effects on blood pressure and glucose metabolism.

Mos and colleagues analyzed data from 1202 participants in HARVEST who had untreated stage 1 hypertension (140–159/90–99 mm Hg) at baseline. The patients had blood pressure monitored regularly and were followed until they developed hypertension that warranted treatment.

About three-quarters of the patients (73%) were men. At baseline, they had a mean blood pressure of 145/94 mm Hg. More than half of the patients were moderate coffee drinkers (767 patients, 63.8%), and the rest were abstainers (316 patients, 26.3%) or heavy coffee drinkers (119 patients, 9.9%).

Coffee drinkers were somewhat older and had a higher body-mass index (BMI) than the other study participants. Moderate coffee drinkers, heavy coffee drinkers, and coffee abstainers had a mean age of 33.5, 36.5, and 30.5, respectively, and they had a mean BMI of 25.7, 26.1, and 24.6, respectively.

During an average follow-up of 12.5 years, there were 60 cardiovascular events, mainly heart attacks (80%), but also strokes, peripheral artery disease (PAD), and kidney failure.

Compared with participants who did not drink coffee, heavy coffee drinkers had a significantly higher risk of developing hypertension needing treatment (hazard ratio [HR] 1.5; 95% CI 1.1–1.9; *P*=0.004). They also had a significantly higher risk of developing prediabetes (HR 2.0, 95% CI 1.3–3.1; *P*=0.0017). There was a nonsignificant trend of an increased risk of these outcomes in moderate coffee drinkers.

Among the heavy coffee drinkers, only the slow caffeine metabolizers had an increased risk of prediabetes (HR 2.78; 95% CI, 1.32–5.88, *P*=0.0076). There are two phenotypes based on coffee metabolism via the cytochrome P450 1A2 (CYP1A2) pathway—"slow" or "fast" caffeine metabolizers—Mos explained to **heart*wire*** . "You go out for dinner, and some people say 'I cannot drink coffee because I cannot sleep'; these people are slow metabolizers of caffeine," he said.

Moderate and heavy coffee drinkers were three and four times more likely to have a CV event, but this risk was lower when the model was adjusted for developing hypertension that required treatment and for developing prediabetes. This suggests that "the effect of coffee on cardiovascular events seems to be at least partly mediated by its long-term effects on blood pressure and glucose," Mos said.

Risk of CV Event for Moderate and Heavy Coffee Drinkers vs Abstainers

Coffee Drinking	HR (95% CI)	*P*
Moderate[a]	3.0 (1.1–8.3)	0.040
Moderate[b]	2.8 (1.0–7.8)	0.054
Moderate[c]	2.3 (0.8–6.5)	0.120
Heavy[a]	4.0 (1.2–12.8)	0.020
Heavy[b]	3.9 (1.2–12.5)	0.025
Heavy[c]	3.2 (0.9–10.9)	0.063

a. Adjusted for relevant variables (sex, BMI, ambulatory blood pressure and heart rate, body weight change, physical activity, and total cholesterol)

b. Adjusted for relevant variables and incident hypertension requiring treatment

c. Adjusted for relevant variables, incident hypertension requiring treatment, and prediabetes

Mos has no relevant financial relationships.

References

1. Mos L, Vriz O, Martina S, et al. Long-term cardiovascular and metabolic effects of coffee consumption in young hypertensive subjects: Results from the HARVEST study. European Society of Cardiology 2015 Congress; August 29, 2015; London, UK. Abstract 899.

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