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File: ■ Red Wine (*Vitis vinifera*)
■ Arteriosclerosis
■ Blood Pressure

HC 021413-500

Date: July 15, 2014

RE: Lifestyle Changes and a Daily Glass of Red Wine Do Not Adversely Increase Blood Pressure or Heart Rate in Patients with Arteriosclerosis

Droste DW, Iliescu C, Vaillant M, et al. A daily glass of red wine and lifestyle changes do not affect arterial blood pressure and heart rate in patients with carotid arteriosclerosis after 4 and 20 weeks. *Cerebrovasc Dis Extra*. 2013;3(1):121-129.

Lifestyle changes (LC; healthy diet and physical activity), chocolate (*Theobroma cacao*), and the Mediterranean diet, including wine (*Vitis vinifera*), tomatoes (*Lycopersicon esculentum* syn. *Solanum lycopersicum*), and walnuts (*Juglans* spp.), have all been associated with improved lipid profiles. Although moderate consumption of red wine has been linked to a reduced risk for cerebro-cardiovascular disease, excessive alcohol consumption has been associated with high blood pressure (BP) and cerebro-cardiovascular disease. There is limited information available about the effects of regular intake of alcohol on BP and heart rate (HR). The goal of this prospective, unblinded, randomized, controlled trial was to assess the effects of LC and a daily glass of red wine on BP and HR in patients with arteriosclerosis.

This study took place in Strassen, Luxembourg. There were 108 patients (67% men) included in the study that were >30 years, had carotid atherosclerosis (documented by ultrasound), a mean BP of 122/79 mm Hg, and a mean HR of 71 bpm. Exclusion criteria were insufficient blood flow (ocular or cerebral ischemia), heart rhythm disorders, consistent systolic BP (SBP) >160 mm Hg, or other complications.

The patients were randomly divided into groups that received lifestyle counseling (LC group) or no lifestyle counseling (control group). Within each of these groups, the patients were randomly divided into 2 groups that were told to avoid alcohol completely or to drink red wine daily (women: 100 ml; men: 200 ml).

In the control group, the patients were instructed not to change their physical and dietary habits. In the LC group, the patients met with dietitians for 5 sessions (at baseline, and after 1, 2, 3, and 4 weeks) to receive advice on healthy eating (i.e., Mediterranean diet) and physical exercise. The patients were recommended to consume 5 portions of fruit/vegetables per day; a diet low in absolute fat; whole-grain products; lean meats

(e.g., poultry, mostly lean fish); and to reduce consumption of red meat and unhealthy additives. Patients were also recommended to regularly consume 1 bar of dark chocolate (25 g, >70% of cacao), 1-2 tomatoes, and 3-5 walnuts, as well as perform at least 30 minutes of moderate daily physical activity. This group was evaluated at baseline, after 4 weeks, and after 20 weeks. In both groups, 24-hour BP and HR measurements were carried out every 20 min during daytime and every 30 min during nighttime.

The primary endpoint was the mean change in 24-hour SBP assessed at baseline and at 20 weeks. The secondary endpoints included changes in the mean 24-hour diastolic BP (DBP) and HR, as well as the mean diurnal and nocturnal effects (SBP, DBP, and HR) assessed at baseline, 4, and 20 weeks.

The intent-to-treat (ITT) population evaluated in this study included 108 patients, whereas the per-protocol (PP) population had 100 patients (8 patients were excluded in the ITT population because they did not comply with the alcohol guidelines for their group or were not evaluated at specific time points of the study). There were no significant differences found among the groups for any of the baseline parameters evaluated. There were also no serious adverse events reported in the study. Additionally, patients were found to be mostly normotensive.

Overall, there were no significant differences found in the intervention groups (LC group or red wine group) in comparison to the control groups for absolute change of SBP, DBP, or HR (for 24-hour, diurnal, and nocturnal measurements) at 4 and 20 weeks. However, the PP analysis indicated that nocturnal HR was significantly increased after 4 weeks only in the LC group that consumed wine ($P < 0.0178$).

Based on the study results, the authors suggest that the beneficial effects (e.g., improved lipid profiles) of a daily glass of red wine are not counteracted by an increase in HR or BP; however, the PP analysis indicated that nocturnal HR was increased as a result of LC and wine consumption. This was partially consistent with another study that found wine, albeit ingested in higher amounts than in this study, increased nocturnal HR in normotensive men.¹ Therefore, the effect that wine has on nocturnal HR, and any relevant health implications, should be further evaluated. Moreover, larger trials that control alcohol consumption levels and LC may provide more accurate information on BP and HR effects.

—Laura M. Bystrom, PhD

Reference

¹Zilkens RR, Burke V, Hodgson JM, Barden A, Beilin LJ, Puddey IB. Red wine and beer elevate blood pressure in normotensive men. *Hypertension*. 2005;45(5):874-879.

Referenced article can be found at <http://www.karger.com/Article/FullText/354847>.

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