Wine and Your Heart

Letter to Editor:
We read with interest the AHA consensus statement “Wine and Your Heart” by Goldberg et al.1 Observational studies suggest an inverse association between the consumption of alcoholic beverages and coronary artery disease. It has been suggested that red wine might be more protective than other alcoholic beverages, although observational studies have wide variations in methodology and measurement error in the amount and type of alcoholic beverage consumed.

We disagree with the authors that any type of alcoholic beverage consumed in moderation inhibits platelet activity. In vitro and in vivo studies have shown that to get significant inhibition of platelet activity an oral dose of alcohol producing a blood alcohol concentration (BAC) of 0.15 g/dL is required.2 These levels are not achieved with moderate alcohol consumption. In the same in vivo animal model, significant inhibition of platelet activity occurred with 4 mL/kg of oral red wine (BAC=0.06 g/dL) or 10 mL/kg of purple grape juice but not with an equal dose of white wine.3 Thus the flavonoids in red wine and grape juice are likely to be causing the platelet inhibition and not the alcohol.

In addition, multiple studies have shown that the flavonoids in grape beverages are very potent antioxidants, affecting a wide range of free radicals and inhibiting cell-mediated oxidation of both low and high density lipoproteins.4 The flavonoids in red wine and purple grape juice, but not pure alcohol, also improve endothelial function by a nitric oxide–dependent mechanism in vitro.4 In addition, the consumption of purple grape juice, or red wine, but not vodka, significantly improved in vivo endothelial function, as measured by flow-mediated dilation, of the human brachial artery.4,5

Finally, flavonoids from red wine or other grape products, but not pure ethanol, inhibit monocyte chemotactic protein-1 expression, inhibit post prandial activation of nuclear factor-κβ, and attenuate DNA synthesis and proliferation of vascular smooth muscle cells.4 All of these factors, including platelet inhibition, protection of low density lipoproteins from oxidation, and improvement in endothelial function, are thought to reduce the initiation and progression of atherosclerosis.

Thus, a growing body of evidence suggests the flavonoids found in red wine and grape products may be protective against the development of atherosclerotic disease by multiple interrelated mechanisms. Although the health hazards incurred by alcohol consumption in any form are clear, further research into the potential benefits of flavonoid-containing products in grapes is warranted.

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Response
Both we and the authors of this letter agree that alcohol per se has antiplatelet effects. The authors dispute that such effects are observed at moderate levels of consumption.1 A number of studies to the contrary are reviewed in our cited Klatsky reference2 (see original reference 30). More work, then, seems to be needed to resolve the dose-dependency of the effects, but in principle, it would not change our advice. Even if moderate alcohol provides benefit by inhibiting the actions of platelets, such benefit can be more safely provided by a nonaddictive means, ie, aspirin.

The authors of this letter note that in vitro studies suggest that there are nonalcoholic substances in wine that have benefits as antioxidants. We already mention this and even cite one of their articles3 (see original reference 33). As in point one, we note that the ingestion of such compounds can be “uncoupled” from alcohol ingestion (such as from grape juice). We further note that clinical studies of antioxidants and heart disease have, as of this writing, been disappointing in that benefits of such compounds have not been proven to affect human vascular disease. So the jury on this is still out.

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