EDITORIAL

Alcohol Consumption, Hypertension, and Cardiovascular Health Across the Life Course: There Is No Such Thing as a One-Size-Fits-All Approach

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Elevated blood pressure is a leading cause of cardiovascular disease and related disability worldwide.[1] It is a largely preventable condition influenced by a range of lifestyle behaviors, including but not limited to level of physical activity, poor diet, and alcohol consumption. In this issue of the *Journal of the American Heart Association (JAHA)*, 2 articles make important incremental contributions in extending the evidence base of the latter.

Roerecke and colleagues[2] carried out a systematic review and dose–response meta-analysis of the association between alcohol consumption, defined using average number of drinks consumed per day, and incident hypertension separately in men and women. They found that no level of alcohol intake was associated with a lower risk of developing hypertension in either sex, which is in contrast to previous systematic reviews of this topic as well as observational studies of alcohol consumption and some cardiovascular outcomes.[3,4]

Piano and co-workers[5] provide complementary findings, focusing on the cross-sectional association of episodic heavy drinking (often referred to as "binge drinking" as the authors chose to, defined as men or women consuming 5 or 4 or more drinks in a single day, respectively) and indicators of cardiometabolic health, including blood pressure, in younger people. They found that frequency of binge drinking was associated with elevated levels of systolic blood pressure in men but not women. This result is in some ways supported by the work of Roerecke et al,[2] who similarly found a less pronounced effect of average alcohol intake on risk of developing hypertension in women. However, this study regrettably falls short of "completing the puzzle" of whether this difference in association with blood pressure by sex is driven by variation in drinking pattern (ie, episodes of heavy drinking being more common in men) through having not included either adjustment for, or the formal testing of an interaction with, overall volume of alcohol consumed.

Notwithstanding this unfortunate missed opportunity, the results of the study by Piano et al[5] are valuable in their own right through reminding us that the drinking habits we adopt in early adulthood and middle age (a time when we are typically free from disease) correlate with premorbid indicators of cardiovascular health.

Considering their findings, both sets of authors rightly call for changes in clinical practice to reduce the burden of alcohol-related hypertension. This viewpoint is by no means controversial, given the wealth of data now available suggesting that alcohol consumption, even at levels typically considered "moderate", is causally associated with elevated blood pressure (and increased risk of developing certain types of cancer and other disorders).[6] However, it could be argued that the suggestion from both teams that screening and counseling for alcohol consumption should be carried out when hypertension is present is not proactive enough if the goal of doing so is to minimize raised blood pressure (and through doing so lower the burden of cardiovascular disease) at a population level.

It is vital that one considers cardiovascular health and its determinants from a life course perspective.[1,7,8] Raised blood pressure with advancing age is not observed in all societies,[9] suggesting that this is not an inevitable part of the aging process. It is for this reason that ensuring healthy lifestyle behaviors are adopted early and maintained across the life

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course has the potential to substantially reduce, and perhaps even eliminate, cardiovascular disease in the population.

The benefits of intervening early in the health-disease continuum have already been elegantly demonstrated for systolic blood pressure.[10] Exposure to ("genetically determined") higher levels of systolic blood pressure is associated with more rapid increases in blood pressure with age, even before the development of hypertension. This indicates that lowering systolic blood pressure before it becomes elevated may slow or attenuate age-related changes in blood pressure. While this finding should be enough to convince most that adopting a life course perspective is crucial to the prevention of cardiovascular disease, the same study also revealed that systolic blood pressure appears to have a cumulative effect on risk of developing coronary heart disease, such that the reduction in risk is proportional to the average time exposed to lower blood pressure. The public health mantra that an ounce of prevention is worth a pound of cure certainly applies in this scenario. Waiting until the problem is overt is suboptimal for at least 2 reasons: first, we are not reducing the collective time an individual is subjected to a state of elevated systolic blood pressure, and second, it may be too late if hypertension (which is usually asymptomatic in the initial stages) has already led to accelerated atherosclerosis or irreversible damage to major organs.

However, as Roerecke et al[2] note, the association of alcohol consumption with cardiovascular end points is not always linear, or necessarily negative (this is echoed in the work of Piano et al[5] also).[3] This leaves public health officials and clinicians in some ways stuck between a rock and a hard place when it comes to providing advice on alcohol consumption.

While it might appear a simple task on paper, the reality of what counsel to provide a patient seeking advice on alcohol consumption and health is not necessarily straightforward.[11] This is perhaps one of the reasons why clinicians may be reluctant to inquire about, or provide advice on, alcohol consumption in primary care, even in situations where it might be beneficial to do so.[12] For example, barely a of quarter of individuals in the United States presenting to their general practitioner with hypertension are recommended to reduce their alcohol intake as a nonpharmacological means of controlling their blood pressure.[13] On the other hand, there are clinicians who have gone as far as recommending that nondrinkers over 40 years of age consider taking up drinking as a means of extending their life and lowering their risk of developing cardiovascular disease.[14] However, this has mostly been met with cynicism,[15] even among proponents of the hypothesis that moderate drinking confers cardiovascular benefits[11,16] and certainly no major public health body endorses such advice. The largest study to date of the dose–response association between alcohol consumption and selected cardiovascular outcomes and all-cause mortality, among those who choose to drink, calculated that the excess risk associated with each additional standard alcoholic drink within the confines of most international drinking guidelines is at a level most would consider acceptable for practically all outcomes investigated.[4]

It is important to remember that people consume alcohol for pleasure and most do so responsibly. The majority of researchers do not actively advocate that people stop drinking but merely seek to emphasize that reductions in consumption can reduce one's overall risk of prematurely developing disease and/or dying. However, this subtle point can occasionally be lost in translation when findings from studies are communicated to the public via the media (sometimes without the involvement of the researchers themselves in this process). As such, public health professionals can quickly be branded as enemies of the people[17] for being perceived as trying to push a temperance agenda upon people who are perfectly content with their current level of consumption. Nevertheless, it is clear that a substantial proportion of the population are not fully aware of the risks associated with (even minimal) alcohol consumption,[18] and there is evidence that those who believe alcohol confers cardioprotective effects tend to drink more on average than those who do not.[19] As such, it is important that the evidence base for alcohol consumption and health continues to be debated in public (including the strengths, limitations, sources of bias, and degree of uncertainty of the collective pool of knowledge). But perhaps rather than messages simply re-stating that drinking alcohol (or not drinking as it may be) is associated with an increased risk of disorder *X*, that can sometimes be perceived as condescending (and may lead to people disengaging),[20] they might instead be packaged in a way that is easily interpretable and/or tailored to an individual, such as absolute differences in risk for someone of their age with otherwise similar characteristics.

It is also important to remember that health is dynamic and there is no such thing as a one-size-fits-all approach to managing risk. An individual's decision to drink, and at what level, should be motivated by their own personal circumstances.[3] Population-level initiatives, such as recommended drinking limits, can only go so far, after which individual-level approaches are needed. Therefore, it is vital that an open and honest dialogue about alcohol consumption be initiated and maintained.[18] What level of alcohol consumption might be considered acceptable for 1 individual may not be for another; equally, an individual might wish to consider changing their drinking habits if their situation changes. Ultimately, our job boils down to empowering an individual to make an informed decision about their level of alcohol intake and how this may influence their long- and short-term health through transparent communication.

Disclosures

None.

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