Alcohol and Health: Current Evidence

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Alcohol and Health Outcomes

Does Inflammation Influence Alcohol's Cardiovascular Effects?

Light-to-moderate alcohol use can reduce cardiovascular mortality in some populations. To investigate whether this protective effect is influenced by inflammation, researchers assessed alcohol use and inflammatory markers (C-reactive protein and interleukin-6) in 2487 adults, aged 70–79 years, without heart disease at study entry. Over a mean 5.6 years of follow-up, 397 deaths and 383 cardiac events (myocardial infarction, angina, or heart failure) occurred.

- In adjusted analyses, the risks of all-cause mortality and incident cardiac events were lower in light-to-moderate drinkers* than in never or occasional drinkers** (hazard ratios [HRs] 0.7 for all-cause mortality and 0.7 for cardiac events).
- Risks were also reduced in light-to-moderate drinking men with above-median, but not lower, levels of interleukin-6 (HRs 0.5 for all-cause mortality and 0.5 for cardiac events).
- C-reactive protein levels did not affect the association between drinking and risk among men.
- The effect of inflammatory markers was not assessed in women because too few women had an outcome event.

Comments: This interesting research is consistent with prior studies that show reduced all-cause mortality and cardiac events in adults who drink light-to-moderate amounts. Although the study found no relationship between C-reactive protein levels, alcohol use, and outcomes, it did find a lower risk in light-to-moderate drinking men with high (but not low) interleukin-6 levels. To better understand the interaction of inflammation, alcohol, and cardiovascular health, further research on this topic should include different populations, such as people with chronic inflammatory conditions, women, and racial minorities.

Kevin L. Kraemer, MD, MSc

*Drank 1–7 standard drinks per week
**Drank never or <1 drink per week

Reference: Maraldi C, et al. Impact of inflammation on the relationship among alcohol consumption, mortality, and cardiac events: the Health, Aging, and Body Composition Study. *Arch Intern Med.* 2006;166(14):1490–1497.

Long-Term Mortality in People Treated for Alcoholism

Few studies have assessed the long-term mortality of a group of people with alcoholism who received treatment at the same program. Researchers in this study tracked, for over 33 years, state and national death records of 500 people with alcoholism who had been admitted to a comprehensive, community-based alcohol treatment program in San Antonio. Most subjects were white, male, unemployed, and unmarried; they had a mean age of 47 years at enrollment and 61 years at death.

- During follow-up, 449 subjects died. The overall case-fatality rate was 0.057 deaths per person-year.
- Cancer and lung-related death rates were lower than expected in the early years of follow-up and higher than expected in the later years.

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Long-Term Mortality (continued from page 1)

- Conversely, death rates of liver disease and "lifestyle-related" causes (accidents, car crashes, homicide, suicide, overdose, and AIDS) were higher than expected in the early years of follow-up and lower than expected in the later years.
- Ethnic and racial differences in mortality included (1) longer survival among whites than blacks and Hispanics, and (2) greater than expected frequency of deaths from liver disease and lifestyle causes in Hispanics than in blacks and whites.

Comments: This long-term follow-up of people with alcoholism admitted to the same treatment program indicates a relatively high mortality rate, early occurrence of liver disease and lifestyle-related deaths, and some differences among ethnic/racial groups. The author acknowledges that findings from this group of urban poor will likely differ from findings in other populations with alcoholism. However, the study illustrates that treatment providers should understand the mortality risks for their patients and incorporate appropriate linkages to medical care and other services.

Kevin L. Kraemer, MD, MSc

Reference: Costello, RM. Long-term mortality from alcoholism: a descriptive analysis. *J Stud Alcohol.* 2006;67(5):694–699.

Moderate Drinking Impairs the Ability to See

Drinking alcohol clearly impairs the ability to drive. To determine whether this impairment is partly due to inattentional blindness—the inability to detect unexpected but visually-salient objects—researchers conducted a randomized study of 46 adults, aged 21–35 years, who were not heavy drinkers.

Subjects received either alcohol or tonic (placebo). Some were accurately told which beverage they received, while others were misinformed. The amounts of alcohol administered were enough to achieve a blood alcohol level of 0.04.

After consuming the beverage, each subject watched a video of teams passing a basketball back and forth. Subjects were asked how many times a particular team passed the ball and whether they noticed the person in a gorilla costume who briefly appeared in the video.

- Only 33% of subjects noticed the "gorilla."
- Subjects who received alcohol were less likely than those who received placebo to notice the gorilla (18% vs. 46%, respectively).
- Telling subjects the content of their beverages did not affect results (30% who were told they received alcohol and 33% who were told they received placebo noticed the gorilla).

Comments: This study suggests that inattentional blindness is more common when people drink than when they abstain. This is particularly concerning given that subjects who received alcohol in this study had a blood alcohol level that was half the legal driving limit in most states. The public should be informed that even low-level drinking before driving is risky.

Rosanne Guerriero, MPH
Richard Saitz MD, MPH

Reference: Clifasefi SL, et al. Blind drunk: the effects of alcohol on inattentional blindness. *Appl Cognit Psychol.* 2006;20(5):697–704.

Alcohol and Cancer Worldwide

Alcohol use can increase the risk of various cancers. Investigators in this study estimated the number of cancer cases and deaths attributable to alcohol drinking worldwide in 2002. They used data on drinking prevalence from the World Health Organization and relative risks of various cancers (oral cavity, pharynx, esophagus, liver, colon, rectum, larynx, and female breast) from recent meta- and pooled analyses.

- Worldwide, 389,100 cases of and 232,900 deaths from cancer were attributable to alcohol. These figures represent 3.6% of all cancer cases (5.2% in men, 1.7% in women) and 3.5% of all cancer deaths (5.1% in men, 1.3% in women), respectively.
- The proportion of alcohol-attributable cancers was particularly high (approximately 9%) among men in Central and Eastern Europe.
- The majority of cancer cases attributable to alcohol in men were of the upper digestive tract (oral cavity, pharynx, and esophagus), while the majority in women were of the breast.

Comments: There are always problems trying to aggregate global data from many sources. A key concern is the lack of information on the health habits and drinking patterns of the individuals who developed cancer. Knowing this information can help provide much more precise estimates of alcohol's effects on cancer than can these global estimates derived from limited data.

R. Curtis Ellison, MD

Reference: Boffetta P, et al. The burden of cancer attributable to alcohol drinking. *Int J Cancer*. 2006;119(4):884–887.

Alcohol-Attributable Mortality and Morbidity in Canada

Researchers in this study aimed to show the impact of alcohol use on chronic diseases in Canada. They linked information from the literature with national statistics on mortality and morbidity, hospitalization data, and results from a national addiction survey.

In Canada in 2002, the following consequences among adults aged 69 and younger were attributable to alcohol consumption:

- A net* of 1631 chronic disease deaths (mostly from cancer or digestive diseases), constituting 2.4% of all deaths for this age group
- 42,996 years of life lost prematurely
- A net of 91,970 hospitalizations, mostly for neuropsychiatric conditions and cardiovascular disease

Moderate drinking (<1.5 drinks per day for women, <3 for men) was associated with 25% of the deaths caused by alcohol and 85% of the deaths prevented by alcohol.

Comments: These data highlight the significant role drinking alcohol, even moderately, plays in chronic disease and death. Far-reaching interventions are needed to reduce the public health burden caused by alcohol in Canada and in other countries.

Richard Saitz, MD, MPH
Rosanne Guerriero, MPH

*The difference between deaths caused and prevented by alcohol

Reference: Rehm J, et al. Estimating chronic disease deaths and hospitalizations due to alcohol use in Canada in 2002: implications for policy and prevention strategies. *Prev Chronic Dis.* 2006;3(4).

Prescription Drug Misuse Is More Common in Drinkers

Few studies have examined the relationship between alcohol consumption and nonmedical use of prescription drugs (NMUPD). To characterize this relationship, researchers analyzed data from 43,093 adults who had participated in a national survey on alcohol and related conditions.

- Of the overall sample, 65% drank and 3% took a prescription drug (opioid, sedative, tranquilizer, or stimulant) for a nonmedical reason in the past year. Approximately 8% had an alcohol use disorder (AUD).
- NMUPD was most common in subjects with past-year alcohol dependence (22%), followed by subjects with alcohol abuse only (8%), a heavy drinking episode* but no AUD (4%), neither a heavy drinking episode nor an AUD (2%), and abstinence (1%).

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*>=5 drinks in a single day for men, >=4 drinks for women

Prescription Drug Misuse Is More Common in Drinkers (continued from page 3)

- In adjusted analyses, the odds of NMUPD were significantly greater among drinkers than abstainers (e.g., odds ratios 1.7 for subjects with neither a heavy drinking episode nor an AUD and 18.2 for subjects with alcohol dependence).
- The co-occurrence of AUDs and NMUPD was more prevalent among adults aged 18–24 years (42%) than among older subjects (24%).

Comments: This study showed that drinkers, particularly those with an AUD, were more likely than abstainers to use a prescription drug for a nonmedical purpose. As stated by the authors, these findings underscore the importance of thoroughly assessing prescription drug misuse while treating AUDs, especially among young adults.

R. Curtis Ellison, MD

Reference: McCabe SE, et al. The relationship between past-year drinking behaviors and nonmedical use of prescription drugs: prevalence of co-occurrence in a national sample. *Drug Alcohol Depend.* 2006;84(3):281–288.

Alcohol Outlets Increase Hospitalization for Assault

Violence is a well-described consequence of unhealthy alcohol use. In this study, researchers from California examined whether violent assaults are related to the density of alcohol outlets in certain communities. They linked hospital discharge data on people with interpersonal violence injuries; industry data on the location of liquor stores, restaurants, bars, and pubs; and census data by zip code.

- Rates of hospitalization for assault were highest in densely populated, poor urban areas with a large proportion of minorities and substantial instability (e.g., high unemployment).
- In analyses adjusted for neighborhood characteristics, a greater density of liquor stores was directly related to higher assault rates.
- A greater density of bars was associated with higher assault rates only in unstable, poor urban areas with many minorities and in middle-income rural areas.

Comments: This study of assaults leading to overnight hospitalization, which are more serious and less common than other assaults, is less subject to community reporting bias than are studies based on police reports. The relationship of liquor outlets to community assaults naturally raises questions about the mechanism of action: Does greater availability of alcohol lead to greater consumption and therefore more belligerence? Or, are people who congregate near liquor stores more prone to hostility? Whatever the reason, clinicians have sufficient evidence to advocate for public health initiatives that limit licensure of liquor outlets in vulnerable neighborhoods.

Peter D. Friedmann, MD, MPH

Reference: Gruenewald PJ, et al. Ecological models of alcohol outlets and violent assaults: crime potentials and geospatial analysis. *Addiction.* 2006;101(5):666–677.

Assessments and Interventions

Primary Care Clinicians Lack Comfort and Skills in Discussing Alcohol Use

Often, primary care clinicians inadequately address alcohol use with their patients. To describe alcohol-related discussions in primary care, investigators audiotaped and performed qualitative analysis of outpatient visits involving 14 primary care clinicians (physicians and nurse practitioners) and 29 of their patients. All patients were male veterans who screened positive for unhealthy alcohol use.*

Three themes emerged:

- Patients often disclosed that they consumed large amounts of alcohol and/or experienced negative health consequences from drinking. Clinicians commonly responded by changing the subject, minimizing the significance of their patients' drinking, or pursuing a nonalcohol-related issue.
- Hesitation, stuttering, inappropriate laughter, and ambiguous statements were apparent when clinicians discussed alcohol but not other topics.

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*Reported drinking >=14 drinks per week or >=5 drinks per occasion, scored >=1 point on the CAGE questionnaire, or reported ever having a drinking problem

Primary Care Clinicians Lack Comfort and Skills in Discussing Alcohol Use (continued from page 4)

- Advice about drinking was tentative and vague while advice about smoking was more common, decisive, and specific.

Comments: Brief alcohol counseling—an evidence-based practice—has been poorly disseminated into primary care practice. This exploratory study suggests that clinicians' discomfort and limited skills in assessing and advising patients with unhealthy alcohol use are partly to blame. Although training alone is not sufficient to increase alcohol counseling, these findings indicate that educational initiatives to improve primary care clinicians' comfort levels and skills are necessary, nonetheless.

Peter D. Friedmann, MD, MPH

Reference: McCormick KA, et al. How primary care providers talk to patients about alcohol: a qualitative study. *J Gen Intern Med.* 2006:21(9):966–972.

Do Doctors' Drinking Habits Affect Management of Patients' Alcohol Problems?

Two different studies explored whether a physician's approach to his patients' alcohol use is complicated by his own drinking habits. Kaner et al interviewed 29 general practitioners (GPs) in Northern England and found the following:

- Some GPs felt that their own alcohol use provided them insight into their patients' use and helped facilitate discussion with patients.
- Others, however, separated their drinking from their patients' drinking.
- Some GPs recognized and addressed risk only in patients who drank more or differently from them.

Aalto et al surveyed all Finnish primary care physicians (n=3193), 60% of whom completed all survey questions (63% women; mean age 42 years).

- Of these respondents, 15% (7% of women, 27% of men) were heavy drinkers, scoring >=8 on the Alcohol Use Disorders Identification Test (AUDIT).
- Fifty-nine percent offered brief interventions (BIs)—9% regularly and 50% occasionally.
- In analyses controlling for demographic and training characteristics, AUDIT scores did not predict either regular or occasional use of BIs.

Comments: Physician drinking can influence clinical practices around alcohol issues. It does not appear, however, to explain the infrequent use of brief interventions.

Jeffrey Samet, MD, MA, MPH

References: Kaner E, et al. Seeing through the glass darkly? A qualitative exploration of GPs' drinking and their alcohol intervention practices. *Fam Pract.* 2006;23(4):481–487; Aalto M, et al. Do primary care physicians' own AUDIT scores predict their use of brief alcohol intervention? A cross-sectional survey. *Drug Alcohol Depend.* 2006;83(2):169–173.

B Vitamins Are Efficacious for Alcoholic Polyneuropathy

Both the direct toxic effects of alcohol and alcoholism-associated vitamin deficiencies can cause mild to incapacitating sensorimotor polyneuropathy. In a 10-site randomized, placebo-controlled trial, researchers assessed whether B vitamins could benefit 253 patients with alcohol dependence, sensory symptoms, signs of alcoholic neuropathy (as shown on nerve conduction studies), and diminished vibration perception at the big toe (determined by biothesiometry). People with other possible neuropathy etiologies or neuropathy lasting for more than 2 years were excluded.

Subjects were randomized to receive one of the following to be taken orally 3 times a day for 12 weeks: placebo, B vitamins (B_1 250 mg, B_2 10 mg, B_6 250 mg, and B_{12} 0.02 mg), or B vitamins plus folic acid (1 mg). Eighty-one percent of subjects completed the trial.

- Vibration perception at the big toe, the primary study endpoint, improved significantly more in both vitamin groups than in the placebo group (increase of approximately 1–2 points vs. 0.5 points on a scale from 0 to 8).
- Pain, sensory function, and eye-nose coordination with eyes closed also improved more in the vitamin groups.
- The number of adverse events was similar in all groups.

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B Vitamins and Alcoholic Polyneuropathy (continued from page 5)

Comments: These findings—B vitamins have efficacy for alcoholic polyneuropathy—are consistent with those reported in other studies. It is difficult, however, to know whether patients will notice improvements with B vitamins or whether these improvements are detectable only via a sensitive research instrument (e.g., biothesiometry). Nonetheless, with favorable safety profiles and low cost, B vitamins are a welcome treatment for people with this often troubling condition.

Richard Saitz, MD, MPH

Reference: Peters TJ, et al. Treatment of alcoholic polyneuropathy with vitamin B complex: a randomized controlled trial. *Alcohol Alcohol.* 2006;41(6):636–642.

Study Does Not Confirm Brief Intervention's Efficacy

Systematic reviews find that screening and brief intervention, at least in primary care settings, can decrease drinking in people with nondependent unhealthy alcohol use. Brief intervention has also shown promise in emergency departments, trauma centers, and other hospital services, where many patients may be receptive to advice.

To assess brief intervention's efficacy in trauma centers, researchers studied 187 adults (out of 4618 screened) who were hospitalized at two Level I Trauma Centers for traumatic vehicular injures and had a blood alcohol concentration (BAC) of >=10 mg/dL. Patients with a BAC <=10 mg/dL, signs of alcohol dependence, or who drank >12 standard drinks a day were excluded.

Subjects, who had an average age of 29 years, were randomized to receive one of the following:

- a 20-minute health interview only (control)
- a health interview and 5 minutes of simple advice
- a health interview, 5 minutes of advice, and two 20-minute brief counseling sessions

Twelve months later (43% loss to follow-up), alcohol consumption and traffic citations significantly decreased. However, there were no significant differences between the 3 groups.

Comments: The improvements seen in these patients after trauma hospitalization were not attributable to brief intervention but may reflect natural history or result from participation in a controlled trial that included alcohol and health assessments. Currently, Level I trauma centers must provide alcohol screening and brief intervention to receive accreditation. Given that resources are limited, how best to deploy this important service will require further study.

Richard Saitz, MD, MPH

Reference: Sommers MS, et al. Effectiveness of brief interventions after alcohol-related vehicular injury: a randomized controlled trial. *J Trauma.* 2006;61(3):523–533.

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