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Light drinkers have lower mortality than former drinkers after adjustment for health and major risk factors: a systematic review

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Abstract

Aims: To study if some former drinkers may have higher mortality because they have not continued light drinking.

Methods: Systematic review of 87 studies on alcohol and all-cause mortality. Recalculation of risk ratios. Three studies met the inclusion criteria: distinction between former and light drinkers and adjustment for diseases or self-rated health in addition to other covariates.

Results: In two of the three comparisons among men, former drinkers had higher relative risk of death than light drinkers. In the third one, there was no significant difference. The same was true for women.

Conclusions: It is likely that some former healthy drinkers have higher mortality because they have stopped light drinking. More efforts should be made to study the effect of stopping alcohol intake on health outcomes.

Short summary

A systematic review found three studies with the distinction between former and light drinkers and adjustment for diseases or self-rated health. In four out of six three comparisons former drinkers had higher relative risk of death than light drinkers, perhaps because they have stopped light drinking.

INTRODUCTION

It is commonly thought that former drinkers have higher mortality than lifelong abstainers because they have stopped drinking because of some disease or alcoholism. However, it is also commonly known that moderate and light alcohol intake may have positive health effects, including a decrease in the risk of death (Di Castelnuovo et al. 2006, Ronksley et al. 2011). Therefore, some former drinkers may have higher mortality because they have not continued light drinking. To study this possibility I have done a systematic review of published studies on alcohol intake and all-cause mortality among former drinkers and light drinkers. Only studies with rigorous adjustment for baseline disease or self-rated health and major risk factors were included in order to make the two groups as comparable as possible. If in such comparisons light drinkers have higher mortality than former drinkers, it suggests that even light alcohol intake is bad for longevity, if the opposite is found, then light drinking may be good for longevity.

DATA AND METHOD

All studies in three earlier meta-analyses (Di Castelnuovo et al. 2006, Ronksley et al. 2011, Stockwell et al. 2016) were included. Searching Pubmed on April 10-14, 2016 did not yield new articles. The search string was mortality[Title/Abstract] AND alcohol[Title/Abstract] AND former drinker (or ex-drinker or past drinker).

The inclusion criteria were: distinction between former drinkers and other abstainers in data analysis and presentation of results, light drinkers available as a reference group (intake up to 2 drinks (24 g) per day or drinking day) and adjustment for diseases or self-rated health reported at baseline examination. Three studies met these criteria among the 87 reviewed.

Relative risks were obtained from models adjusting for diseases or self-rated health and as many potential confounders as possible. New relative risks were calculated from the published ones in original articles so that the reference group was light drinkers. The method has been published earlier (Stockwell et al. 2016).

RESULTS

In two of the three comparisons among men, former drinkers had higher relative risk of death than light drinkers. In the third one, there was no significant difference but the point estimate of relative risk was above one. The same was true for women (Table). In none of the comparisons had light drinkers higher mortality than former drinkers.

DISCUSSION

It is possible that former drinkers had higher mortality because they have stopped light drinking. This is suggested by rigorous adjustment for disease or self-rated health as well as major risk factors in the cohorts studied. The present finding agrees with an earlier result showing that the incidence of cardiovascular diseases decreased 29 percent among those men who increased their alcohol intake over the follow-up period, from one drink or less per week to up to six drinks per week (Sesso et al. 2000).

An alternative explanation is that the former drinkers may have had some diseases that have remained unadjusted. Adjustment for self-rated health is likely reflect well objective health status as self-rated health is known to be an important predictor of future mortality. Alcoholism may remain

hidden. Two facts speak against the role of alcoholism as a major explanation. First, smoking, a strong correlate of alcohol intake, was adjusted for in all the three studies. Moreover, Nakaya et al. (2004) adjusted also for liver diseases. Secondly, in a large U.S. study, no alcoholism cases were found at baseline among any former drinkers, irrespective of the level of alcohol intake (Dawson 2000). Of course, there always remains the possibility that some unknown factor might have biased the results. This explanation, however, seems unlikely, judging from the number of known confounders that were adjusted.

More efforts should be made to study the effect of stopping alcohol intake on future health outcomes. Data permitting, published studies could be re-analysed. New studies should pay more attention to former drinkers. I suggest that (1) outcomes should be compared between former drinkers and light drinkers, (2) the earlier health and drinking patterns of former drinkers should be taken into consideration, (3) future changes in alcohol intake and health should be ascertained, and (4) the potential influence of time in abstinence after stopping drinking on health outcomes should be studied. The longer the time in abstinence, the worse may be the outcome.

CONFLICT OF INTEREST STATEMENT

None declared.

Summary:

<http://atlasofscience.org/stopping-light-drinking-may-increase-death-risk-among-healthy-adults/>

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Table. Relative risk among former drinkers (light drinkers = 1) and 95 % confidence interval: studies with adjustment for baseline health and major risk factors					
First author, year Country, cohort, Light drinker, intake	Sex	Number of subjects Former/ light drinkers	Relative risk among former drinkers (light drinkers = 1) and 95 % confidence interval		Adjustments
Nakaya, 2004 Japan, Miyagi < 22,8 g/day	Men	1448/4821	1.71	1.25 – 2.33	1
	Women	740/3837	1.36	0.83 – 2.22	
Liao, 2000 USA, NHIS 1988-90 < 1 drink/day	Men	3954/7060	1.19	0.95 – 1.48	2
	Women	3815/7834	1.38	1.17 – 1.63	
Rostron, 2012 USA, NHIS 1997- 2004 1 drink/ drinking day	Men	Men + women 37340/40147	1.28	1.05 – 1.56	3
	Women		1.39	1.18 – 1.63	
<p>1. Age, education, marital status, past history of hypertension, renal diseases, liver diseases, diabetes mellitus, peptic ulcers, or tuberculosis; cigarette smoking, body mass index, walking time per day, consumption of green vegetables and oranges. Exclusion of 317 subjects who died within the first 3 years of follow-up.</p> <p>2. Age, race, smoking, history of hypertension, diabetes, heart disease, marital status, years of education, and self-rated health status.</p> <p>3. Age, race/ethnicity, educational attainment, marital status, family income, smoking status, body mass index, and self-rated health status.</p>					
NHIS = National Health Interview Survey					