Cardiovascular disease

Heavy drinkers and teetotallers at increased risk of wide range of cardiovascular diseases

Both high levels of alcohol consumption and abstinence raise the risk of a broad spectrum of cardiovascular disorders, a UK study has shown.

The authors of this population-based cohort study included data from almost two million (1,937,360) adults in England, 51% women. It covered primary care records from the CPRD, information from hospital admissions and mortality data between 1997 and 2010. All participants in the study were free from cardiovascular disease at baseline. Outcome measures included 12 common forms of vascular disease.

Self-reported alcohol consumption had been recorded in primary care, and alcohol use was classified into five groups: non-drinkers; former drinkers; occasional drinkers; moderate drinkers and heavy drinkers. During a median follow-up period of six years, 114,859 participants received an incident cardiovascular diagnosis.

The study confirmed the classic J-shaped relationship between increasing alcohol consumption and cardiovascular disease and all cause mortality, with heavy drinkers and both non-drinkers and former drinkers having increased risk compared with moderate drinkers (i.e. those who remained within UK guidelines), the hazard ratios (HR) are shown in table 1, left.

Table 1

CVD outcomes and alcohol intake

Outcome	Hazard ratio (95% CI)
All cause mortality	
Non-drinker	1.24 (1.20-1.28)
Former drinker	1.38 (1.30-1.47)
Occasional drinker	1.05 (1.03-1.07)
Moderate drinker	1.00 (reference)
Heavy drinker	1.34 (1.31-1.38)
Fatal CVD	
Non-drinker	1.32 (1.27-1.38)
Former drinker	1.44 (1.28-1.62)
Occasional drinker	1.09 (1.03-1.16)
Moderate drinker	1.00 (reference)
Heavy drinker	1.20 (1.13-1.27)
Fatal and non-fatal CVD	
Non-drinker	1.23 (1.19-1.27)
Former drinker	1.29 (1.22-1.35)
Occasional drinker	1.10 (1.07-1.13)
Moderate drinker	1.00 (reference)
Heavy drinker	1.14 (1.10-1.19)

Heavy drinking

Drinking at levels that exceeded UK guidelines was associated with increased risk of the majority of cardiovascular diagnoses, but a lower risk of MI and stable angina.

Heavy drinking conferred an increased risk of presenting with:

- Unheralded coronary death
HR 1.21 (95% CI:1.08-1.35)
- Heart failure
HR 1.22 (95% CI: 1.08-1.37)
- Cardiac arrest
HR 1.50 (95% CI:1.26-1.77)
- Transient ischaemic attack
HR 1.11 (95% CI:1.02-1.37),
- Ischaemic stroke
HR 1.33 (95% CI:1.09-1.63)
- Intracerebral haemorrhage
HR 1.37 (95% CI:1.16-1.62)
- Peripheral arterial disease
HR 1.35 (95% CI:1.23-1.48)

However, heavy drinking conferred a lower risk of presenting with:

- Myocardial infarction
HR 0.88 (95% CI:0.79-1.00)
- Stable angina
HR 0.93 (95% CI:0.86-1.00).

Non-drinking

Non-drinking, compared with moderate drinking, was associated with an increased risk of:

- Unstable angina
HR 1.33 (95% CI:1.21-1.45)
- Myocardial infarction
HR 1.32 (95% CI:1.24-1.41)
- Unheralded coronary death
HR 1.56 (95% CI:1.38-1.76)
- Heart failure
HR 1.24 (95% CI:1.11-1.38)
- Ischaemic stroke
HR 1.12 (95% CI:1.01-1.24)
- Peripheral arterial disease
HR 1.22 (95% CI:1.13-1.32)
- Abdominal aortic aneurysm
HR 1.32 (95% CI:1.17-1.49).

The study authors conclude: 'The main clinical implications stemming from our findings are concerned with primary prevention and personalised risk. For example, if a patient reports heavy drinking they can be informed that if they continue to do so they have an increased risk of initial presentation with ischaemic stroke, heart failure, cardiac arrest, TIA, intracerebral haemorrhage, or peripheral arterial disease, as well as coronary death with no previous symptoms.'

Most investigations into the relationship between alcohol consumption and cardiovascular disease have suggested that those who drink moderately have lower cardiovascular morbidity and mortality than those who are abstinent from alcohol. Indeed, some short-term studies have demonstrated beneficial effects on HDL cholesterol levels in moderate drinkers, providing a potential mechanism for these apparent health benefits.

However, some have argued that those who are abstinent from alcohol may have quit drinking because of ill health, and this may have contributed bias to population-based studies. Limitations to the current evidence base include previous studies' focus on MI and stroke as outcome measures, rather than a broader range of vascular disease, and the inability of relatively low-powered studies to separate current non-drinkers into lifetime non-drinkers, former and occasional drinkers.

This large-scale study has also confirmed that abstinence from alcohol is associated with a higher risk of cardiovascular disease and all cause mortality even when former drinkers are removed from the analysis.

DR JEZ THOMPSON

Bell S, Daskalopoulou M, Rapsomaniki E et al. Association between clinically recorded alcohol consumption and initial presentation of 12 cardiovascular diseases: population based cohort study using linked health records. *BMJ* 2017;356:j909