Clinical Investigations

Low-to-Moderate Alcohol Intake and Health Status in Heart Failure Patients

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ABSTRACT

Background: Although heart failure (HF) guidelines recommend alcohol abstinence, existing evidence indicates that alcohol may not worsen survival and no data about associations between alcohol and health status (patients' symptoms, function, and quality of life) exist.

Methods and Results: Alcohol use was quantified in 420 HF outpatients. The associations between moderate alcohol intake (1 to 60 drinks/month) and health status were assessed by comparing baseline and 1-year Kansas City Cardiomyopathy Questionnaire (KCCQ) and Short Form-12 (SF-12) scores between moderate and nondrinkers. No differences in baseline KCCQ or SF-12 scores between abstainers (n = 245) and moderate drinkers (n = 175) were observed (KCCQ 60.5 ± 24 versus 61.9 ± 23.5, $P = .55$; SF-12 Physical Component Score (PCS) 33.6 ± 11.2 versus 35.3 ± 10.2, $P = .14$; and SF-12 Mental Component Score (MCS) 49.1 ± 11.1 versus 49.4 ± 11.4, $P = .78$). Abstainers and drinkers also had similar 1-year KCCQ scores (65.8 ± 24.5 versus 69.3 ± 24.1, $P = .23$), mortality (10.5% versus 11.6%, $P = .72$) and HF hospitalizations (18.0% versus 15.4%, $P = .51$). Multivariable analyses controlling for baseline differences also revealed similar outcomes between abstainers and drinkers—1-year KCCQ change = 4.3 ± 1.8 versus 5.2 ± 2.5; $P = .75$), mortality (OR = 1.33, 95% CI 0.67–2.64), or HF hospitalization (OR = 1.13, 95% CI 0.60–2.11).

Conclusion: No relationships between moderate alcohol consumption and health status or 1-year outcomes were identified in this multicenter observational study. These data do not support the need for complete alcohol abstinence for all HF patients among those who drink in moderation.

Key Words: Alcohol, functional capacity, heart failure, quality of life.

Long-term, heavy alcohol use has long been associated with worsening cardiac function and the development of heart failure.[1,2] Cardiotoxicity concerns have lead current heart failure treatment guidelines to recommend that patients abstain from alcohol consumption.[3] The evidence supporting these recommendations largely comes from the generalization of data from small studies of chronic alcoholics, rather than studies of individuals who consume low-to-moderate amounts of alcohol. Interestingly, it has been suggested that the cardiotoxic effects of alcohol are dose-dependent and that lower levels of intake may not cause cardiac dysfunction.[4] Furthermore, some evidence suggests that moderate drinking is associated with improved outcomes for patients with coronary artery disease, including a lower incidence of, and better survival after, myocardial infarction.[5–8] Additional studies have also indicated that moderate alcohol intake is associated with lower rates of heart failure development,[9,10] whereas another found light-to-moderate drinking did not increase mortality or hospitalization in patients with established heart failure.[11] In fact, moderate alcohol consumption may even improve mortality in patients with ventricular dysfunction of ischemic etiology.[11]

An important limitation about current data regarding alcohol consumption in heart failure is that potential mortality benefits from alcohol consumption may not reveal possible adverse (or beneficial) effects of alcohol use on patients'

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health status (ie, their symptoms, function, and quality of life). There are no data to describe the association between low-to-moderate alcohol consumption and health status in heart failure patients. Because improving health status is a primary goal in heart failure management, it is important to understand how it is influenced by alcohol consumption. Furthermore, guidelines call for abstinence, potentially requiring a substantial lifestyle change for many patients. To support such recommendations, an understanding of how the health status of low-to-moderate drinkers compares with nondrinkers is needed so that patients can understand the potential benefits of altering their drinking behavior.

To examine the relationship between alcohol consumption and health status, it is important to appreciate, from the patient's perspective, how heart failure affects their symptoms, function, and quality of life. We evaluated the association between alcohol consumption and health status using a disease specific health status measure, the Kansas City Cardiomyopathy Questionnaire (KCCQ), in a multicenter cohort of heart failure outpatients. In addition to examining the cross-sectional association of alcohol consumption and health status, we explored the relationship between alcohol use and patients' health status 1 year later to learn whether alcohol consumption is associated with a different trajectory of health status over time.

Methods

Study Population

A convenience sample of heart failure outpatients (n = 547) from 13 North American centers (see Appendix) were recruited through the Cardiovascular Outcomes Research Consortium. Eligible patients were older than 30 and had heart failure confirmed by documentation in their outpatient medical records, a prior hospitalization for decompensated heart failure in the past 3 years or an ejection fraction of less than 40%. No additional exclusion criteria were enforced.

Detailed histories, physical examinations, and interviews were performed on all patients at baseline. The interviews included standardized health status questionnaires and alcohol items as described in the following section. One year after initial enrollment, patients' vital status was determined through a query of the social security death master file and living patients were contacted by telephone for follow-up health status assessments. A minimum of 10 attempts were made to contact patients and, if all attempts were unsuccessful, a questionnaire packet was sent. A second mailing was sent if the patient did not return his or her initial packet. If there was no reply to the second mailing, the patient was assumed to be lost to follow-up. Institutional Review Board approval was received at each participating center.

Outcome Measures

The primary outcomes were the disease-specific KCCQ and the generic Short Form-12 (SF-12) health status questionnaires. The KCCQ is a 23-item, self-administered questionnaire with scales measuring multiple health status domains including symptoms, physical function, social function, self-efficacy, and quality of life. These can be summarized by a single score, the KCCQ overall summary score, that reflects patients' overall health status (range 0 to 100), where higher scores represent better physical and social function, higher quality of life, and fewer symptoms. The validity, reliability, and responsiveness of this measure have previously been established.[13] KCCQ score changes of 5 points or greater are considered to be clinically significant.[14] The SF-12 is a validated and reliable generic measure of overall physical and mental health.[15] It generates a Physical Component Summary and a Mental Component Summary score. Scores range from 0 to 100, with higher scores representing better health status. A score of 50 is normalized to the mean health status of the US population and each 10 points represents 1 standard deviation from that mean. Secondary outcomes were heart failure hospitalization and mortality within 1 year of the baseline assessment.

Quantifying Alcohol Consumption

Patients' drinking patterns were obtained by self-report using elements of the World Health Organization's Alcohol Use Disorders Identification Test (AUDIT).[12] The first AUDIT question inquires how often patients consumed an alcoholic beverage over the past year, with responses ranging from "never" to "6 or more times per week." The second item assesses how many drinks were consumed on a "typical day" when drinking in the past year, with responses ranging from "0 to 10 or more drinks." The responses to these 2 items were multiplied to produce a total monthly rate of alcohol consumption. Patients consuming between 1 to 60 drinks per month (2 or fewer drinks per day) were classified as low-to-moderate drinkers. Baseline alcohol consumption information was missing for 13 (2.4%) patients. In addition, 98 (18%) patients provided inconsistent data from which no accurate average consumption could be generated (ie, responding "never" to question 1 and "5–6 drinks" for question 2) and were therefore excluded. Among the patients with analyzable alcohol data, 16 (2.9%) were heavy drinkers (>60 drinks/month) and were also excluded from the current analysis. Thus there were 420 patients with analyzable alcohol consumption data who were included in the baseline analyses.

Patient Follow-Up

Of the 420 patients with complete baseline data, 45 died over the 1 year of follow-up. Complete 1-year health status data were available for 291 (77.8%) of the 375 living, eligible patients. Comparing the 291 surviving patients who had complete follow-up interviews with the 84 surviving patients with analyzable baseline data but who did not participate in follow-up demonstrated that patients in the follow-up population were more likely to be in a slightly lower New York Heart Association class (mean (SD) 2.3 ± 0.7 versus 2.5 ± 0.8; $P = .04$) and less likely to have been taking an angiotensin-converting enzyme inhibitor (78.7% versus 90.5%; $P = .02$). Similar alcohol consumption patterns (58.3% of those in the cohort abstained as compared with 54.9% of those without follow-up, $P = .44$) were observed, and there were no other significant differences in any other demographic, clinical, or health status characteristics between those who did and did not have complete follow-up data available.

Statistical Analyses

Univariate analyses of baseline characteristics of patients consuming low-to-moderate amounts of alcohol (1 to 60 drinks/month)