



Impact of Modifiable Risk Factors on B-Type Natriuretic Peptide and Cardiac Troponin T Concentrations

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Scholarly Report submitted in partial fulfillment of the MD Degree at Harvard Medical School

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Scholarly Report Title:

Impact of Modifiable Risk Factors on B-type Natriuretic Peptide and Cardiac Troponin T Concentrations

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Abstract

Impact of Modifiable Risk Factors on B-type Natriuretic Peptide and Cardiac Troponin T Concentrations

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Purpose: Alcohol use, physical activity, diet, and cigarette smoking are modifiable cardiovascular risk factors that have a substantial impact on the risk of myocardial infarction, stroke, and cardiovascular death. We hypothesized that these behaviors may alter concentrations of cardiac troponin, a marker of myocyte injury, and B-type natriuretic peptide, a marker of myocyte stress. Both markers have shown strong association with adverse cardiovascular outcomes.

Methods: In 519 women with no evidence of cardiovascular disease, we measured circulating concentrations of cardiac troponin T, using a high-sensitivity assay (hsTnT), and the N-terminal fragment of B-type natriuretic peptide (NT-proBNP). We used logistic regression to determine if these behaviors were associated with hsTnT ≥ 3 ng/l or with NT-proBNP in the highest quartile (≥ 127.3 ng/l).

Results: The median (Q1 to Q3) NT-proBNP of the cohort was 68.8 ng/l (40.3 to 127.3 ng/l), and 30.8% (160 of 519) of the cohort had circulating hsTnT ≥ 3 ng/l. In adjusted models, women who drank 1 to 6 drinks/week had lower odds of having a hsTnT ≥ 3 ng/l (odds ratio 0.58, 95% confidence interval 0.34 to 0.96) and lower odds of having an elevated NT-proBNP (odds ratio 0.55, 95% confidence interval 0.32 to 0.96). We were subsequently able to validate the results for B-type natriuretic peptide in a large independent cohort.

Conclusion: In conclusion, our results suggest that regular alcohol consumption is associated with lower concentrations of hsTnT and NT-proBNP, 2 cardiovascular biomarkers associated with cardiovascular risk, and raise the hypothesis that the beneficial effects of alcohol consumption may be mediated by direct effects on the myocardium.

Description of Contribution to Work

I, under the mentorship of Dr. Brendan Everett, was involved in the design of the aforementioned study. I performed the statistical analysis in SAS for the manuscript, and wrote the first draft of the manuscript. I worked closely with Dr. Everett on subsequent drafts of the manuscript and then incorporated the suggestions of the other authors of the manuscript.

Link to Manuscript:

<http://www.ncbi.nlm.nih.gov.ezp-prod1.hul.harvard.edu/pubmed/26739393>

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