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Reply to Letter to the Editor: "Do Energy Drinks and Alcohol Effect Myocardium and Skeletal Muscle?"

LETTER TO THE EDITOR
REPLY

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To the Editor,

The first question was, why we didn't mention the histological changes in the aorta while we emphasized in the method's section that we aimed to examine the histological changes in the aorta, myocardium, and striated muscles. Actually, you are right about this. When we were conducting the study, we aimed to investigate the side effects of energy drinks (EDs) and alcohol on the aorta, but during the pathological examination, we abandoned the aortic examination. Because we observed abnormal morphology in the vascular endothelium in the heart, and we wrote this finding in the results section. Another pathological examination of the aorta would require extra effort and probably give similar results. Because we observed abnormal morphology in the vascular endothelium in the heart walls, and we wrote this finding in the results section. Another pathological examination of the abdominal aorta would require extra effort and probably give similar results. However, we should have removed it from the Methods section or expressed it in the article.

The second question was why we did not write the results of post-hoc analysis between groups. Actually, we performed Mann-Whitney U test after Kruskal-Wallis test. We didn't express the exact Mann-Whitney U results in the text because the group that led to significance was very obvious. Writing all post-hoc analyses would unnecessarily take up a lot of space in the article. That's why we pointed out the group which causes the significance. If you take a look at Tables 1 and 2 from this point of view, you will notice that. It might be better not to hesitate to express the post-hoc results separately.

The third question was about which troponin level was measured, and the troponin results needed to be clarified. We used high-sensitivity cardiac troponin T (hs-cTnT) in this study. We agree with you regarding the importance of troponin results. Unfortunately, we did not present these results because pathological examinations are stronger evidence than blood tests. Pathological examination clearly showed structural heart deterioration in the alcohol-mixed EDs group. In this context, the relationship between alcohol and hs-cTnT, to the best of our knowledge, there is no consensus regarding the relationship between alcohol exposure and troponin levels in an animal or human being study. There are many studies reporting lower hs-cTnT levels in drinkers than non-drinkers.[1-3] Lazo et al[1] conducted a prospective study with 11,000 participants, and they showed that moderate drinking is associated with lower concentrations of hs-cTnT. Rubin et al[3] reported in a study including 9593 participants that alcohol consumption is one of the factors which are inversely associated with the prevalence of detectable hs-cTnT.[3] Furthermore, there are lots of rat studies that report different outcomes in respect of troponin levels according to the amount and time of alcohol consumed. Also, troponin levels are affected by sex and other drug exposure in alcohol-treated rats. In addition, different types of troponin markers vary in different tissue samples (heart, blood, muscle, etc).[4-7] In conclusion, higher troponin levels may not be correlated with myocardial damage under alcohol consumption and the reason is unclear

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because it is affected by so many variables. This is just the tip of the iceberg and way beyond the scope of this article.

We would like to make another contribution to draw attention to this issue. The use of these beverages is increasing day by day and this is terrifying. The main concern about EDs is that public awareness of this issue is not sufficient. European Cardiac Arrhythmia Society recommended not allowing children under 14 years or those with heart disease to consume EDs.[8] Thankfully, the authorities prohibited sales of EDs to those under 18 years of age in Turkey in 2017. A recent study defines alcohol-mixed EDs as a growing public health issue because of the side effects on the various organ systems, especially the cardiovascular system.[9] In our study, we observed multiple inflammatory cell infiltrations and a large number of damages to cardiac muscle cells in the alcohol-mixed EDs group.[10] A recent review article which includes 16 rodent studies concluded that alcohol-mixed EDs increase the number of pro-inflammatory cytokines, induced oxidative stress, and lipid peroxidase. These consequences vary according to the amount of usage, age, sex, and lineage of animals.[11] This brings another terrifying question "Are children more sensitive to these?" We believe that we should not let EDs become a public health issue, especially in children.

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