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Admission serum potassium level is associated with in-hospital and long-term mortality in ST-elevation myocardial infarction

To the Editor,

I have read the article entitled "Admission serum potassium level is associated with in-hospital and long-term mortality in ST-elevation myocardial infarction" by Uluganyan et al. (1) with great interest, recently published in the Anatolian Journal of Cardiology 2015; 16: 10-15. The investigators reported that admission serum potassium (sK) level of >4.5 mmol/L was associated with increased long-term mortality, and significant relation was detected between sK levels of <3 mmol/L and ≥5 mmol/L and ventricular arrhythmias. A previous study demonstrated that mean sK level above 4.5 mmol/L is associated with increased mortality, and sK levels between 3.5 and 4.5 mmol/L is the optimal range suggested for acute MI patients (2). Rate of ventricular fibrillation or cardiac arrest was relatively stable across a wide range of mean post-admission potassium levels, except for extreme values (<3.0 and ≥5.0 mEq/L) (2). Another study revealed that long-term mortality was lowest in patients with potassium levels of 3.5 to <4.0 mEq/L, whereas mortality was higher in patients with potassium levels of ≥4.5 or <3.5 mEq/L (3).

However, because of some confounding factors, I would like to emphasize on some important points to clarify the findings of Uluganyan et al. (1). First, sK level is a very changeable parameter, and many factors affect the sK levels such as drugs, kidney function, and insulin therapy (4,5). Because insulin therapy affects sK level, lack of in-hospital sK follow-up period is a big gap, particularly for patients on insulin therapy. In addition, it is not mentioned whether patients were on standard insulin therapy or patients on insulin infusion were excluded. Second, there was no data regarding the severity and extensiveness of coronary artery disease and PCI procedure and the success rate of total revascularization. Third, they have mentioned ventricular arrhythmias but did not mention the type such as postperfusion ventricular arrhythmias ; postperfusion ventricular arrhythmias are known to be benign, and there is no need for treatment. Fourth, the kind of diuretic treatment that was administrated is not clear. They should have classified diuretic treatments such as the use of loop diuretics, thiazides, and potassium-sparing diuretics.

In conclusion, although the relation between cardiovascular events and sK levels was shown in several studies, further randomized clinical trials are needed with close follow-up of sK levels because many factors may easily affect sK levels.

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Author`s Reply

To the Editor,

We thank the author(s) for their special comments on our study entitled "Admission serum potassium level is associated with in-hospital and long-term mortality in ST-elevation myocardial infarction" published in the Anatolian Journal of Cardiology 2015; 16: 10-15. In the study, we determined the association between cardiovascular outcomes and admission serum