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Atrial Fibrillation: A New Risk Factor for Contrast-Induced Nephropathy

Tufan Çinar, MD[1], Muhammed Keskin, MD[1], and Adnan Kaya, MD[2]

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We read with interest the article entitled "*Effect of Atrial Fibrillation on Contrast-Induced Nephropathy Development in Patients With Non-ST-Segment Elevation Myocardial Infarction*" by Düzel et al.[1] In this prospective study, the investigators reported that atrial fibrillation (AF), diabetes mellitus, Mehran Risk Score, baseline glomerular filtration rate, left anterior descending as the infarct-related artery, and low left ejection fraction were independent predictors of contrast-induced nephropathy (CIN) in patients with acute coronary syndrome (ACS) who underwent percutaneous coronary intervention within 24 hours.

Electrolyte imbalance, particularly hypokalemia or hyperkalemia, is often present in patients with ACS and, it may cause cardiac arrhythmias such as AF, ventricular tachycardia, and ventricular fibrillation. A study reported that the deviations of admission potassium (K) level form normal ranges, either as hypokalemia or hyperkalemia, during the hospital course are associated with increased mortality in patients with ACS.[2] Particularly, the stimulation of the sympathetic nervous system may cause the increased plasma catecholamine levels, which may contribute the development of hypokalemia in patients with ACS—most likely from K influx into cells.[2] Besides that, the decrease in renal blood flow due to decreased cardiac output as a result of cardiac injury can ultimately lead to constriction of the renal artery and renal medullary hypoxia, resulting in the development of CIN and hyperkalemia; all of these changes may lead to the development of AF.

There are several case reports that demonstrate the association between hyperkalemia and AF.[3,4] However, in the study by Düzel et al,[1] there are no data regarding K levels. Especially, the K level both on admission and the following 48 hours could be useful to evaluate the effect of K level on the occurrence of AF in patients with ACS who developed CIN.

ORCID iD

Tufan Çinar http://orcid.org/0000-0001-8188-5020
Muhammed Keskin http://orcid.org/0000-0002-4938-0097
Adnan Kaya http://orcid.org/0000-0002-9225-8353

References

1. Düzel B, Emren SV, Berilgen R. Effect of atrial fibrillation on contrast-induced nephropathy development in patients with non-ST-segment elevation myocardial infarction. *Angiology*. 2017; 68(10):871-6.
2. Kaya A, Keskin M, Tatlisu MA, Kayapinar O. Effect of dynamic potassium change on in-hospital mortality, ventricular arrhythmias, and long-term mortality in STEMI [Published online ahead of print July 2, 2018]. *Angiology*. doi:10.1177/0003319718784127.
3. Yoon JH, Jung DH, Park SK, et al. Spontaneous sinus conversion of permanent atrial fibrillation during treatment of hyperkalemia. *Korean Circ J*. 2012;42(1):65-8.
4. Yan L, Jiang T, Yang X, Xu M. Spontaneous conversion of atrial fibrillation caused by severe hyperkalemia: a case report. *Medicine (Baltimore)*. 2018;97(15):e0442.

[1] Department of Cardiology, Health Sciences University, Sultan Abdülhamid Han Training and Research Hospital, Istanbul, Turkey
[2] Department of Cardiology, Düzce University Medical School, Düzce, Turkey

Corresponding Author:
Tufan Çinar, Department of Cardiology, Health Sciences University, Sultan Abdülhamid Han Training and Research Hospital, Istanbul, Turkey.
Email: drtufancinar@gmail.com