

Letter to the Editor

Editöre Mektup

Electrolyte Imbalances as a predisposing factor for arrhythmias

To the Editor,

I read the case entitled “Unexpected cause of lead fracWe read the article entitled “Assessment of electrocardiographic parameters in adult patients undergoing extracorporeal shockwave lithotripsy,” by Durmuş et al.^[1] with great interest. We want to thank the authors for a different perspective on a familiar approach, namely, gated extracorporeal shock wave lithotripsy (ESWL).

Electrocardiography (ECG) is a simple, practical, and clinically applicable tool for the assessment of arrhythmias and well-accepted parameters, such as P wave dispersion, QT dispersion, T-peak to T-end (Tp-e) interval, Tp-e interval/QT ratio, and Tp-e interval/corrected QT (QTc) ratio.^[2] Even in long-term follow-up of patients with pulmonary embolism, the QTc and Tp-e intervals have been utilized as confirmation of ventricular arrhythmias investigated using 24-hour Holter monitoring.^[3] Cardiac dysrhythmias (CD) are common during ESWL, as was mentioned by the authors. A combination of neurohumoral response and direct mechanical effect is the pathophysiology for the change in ECG parameters. The correlation of the change in ECG parameters and the duration of ESWL also suggested to us that ESWL should not be considered without impact, due to its effect on cardiac electrophysiology. Measuring arrhythmia-predictive ECG parameters before and after ESWL may be directive and the results should be interpreted, as patients in the high-risk group for arrhythmias should be followed-up closely after the procedure. We also wonder about some other issues in this trial. There were no data regarding the electrolyte level of the patients before and after ESWL. Electrolytes are dynamic factors, particularly in patients predisposed to renal dys-

function, such as in the case of urinary tract calculi. It would be appropriate to hold ESWL responsible after removing distractor factors, such as electrolytes. In particular, potassium, with its narrow serum range, is often responsible for arrhythmic episodes.^[4] The second point, which is indirectly related to the result of this trial, is after correlation of the change in ECG parameters and the duration of ESWL, body mass index could be very valuable to determine the mechanical effect of ESWL on CD.^[5] With the baseline and laboratory parameters we suggest, it would be a more objective way to provide more valuable results. Nevertheless, this trial is enlightening work about ESWL and cardiac arrhythmias.

Mert İlker Hayıroğlu, M.D.,
Muhammed Keskin, M.D., Ömer Kozan, M.D.

Department of Cardiology, Haydarpaşa Sultan
Abdulhamid Han Training and Research Hospital,
İstanbul, Turkey

e-mail: mertilkerh@yahoo.com

doi: 10.5543/tkda.2017.88967

Conflict-of-interest: None declared.

References

1. Durmuş G, Kalyoncuoğlu M1, Karataş MB, Çanga Y, Öztürk S, Özal E, et al. Assessment of electrocardiographic parameters in adult patients undergoing extracorporeal shockwave lithotripsy. *Turk Kardiyol Dern Ars* 2017;45:408–14. [CrossRef]
2. Yamaguchi M, Shimizu M, Ino H, Terai H, Uchiyama K, Oe K, et al. T wave peak-to-end interval and QT dispersion in acquired long QT syndrome: a new index for arrhythmogenicity. *Clin Sci (Lond)* 2003;105:671–6. [CrossRef]
3. Hayıroğlu Mİ, Keskin M, Uzun AO, Tekkeşin Aİ, Avşar Ş, Öz A, et al. Long-Term Antiarrhythmic Effects of Thrombolytic Therapy in Pulmonary Embolism. *Heart Lung Circ* 2017;26:1094–100. [CrossRef]
4. El-Sherif N, Turitto G. Electrolyte disorders and arrhythmogenesis. *Cardiol J* 2011;18:233–45.
5. Huang G, Parikh PB, Malhotra A, Gruberg L, Kort S. Relation of Body Mass Index and Gender to Left Atrial Size and Atrial Fibrillation. *Am J Cardiol* 2017;120:218–22. [CrossRef]

