

## A Recent Evaluation of Ventricular Repolarization in Diabetic Patients

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### To the Editor,

We have read with great interest the article published in the previous issue reported by Clemente et al<sup>1</sup> on the analysis of some ventricular repolarization parameters in diabetic patients (DP). In the study, the authors give new information about a relevant and contemporary topic. The risk to develop ventricular arrhythmias and subsequently sudden cardiac death (SCD) in DP has been demonstrated in several studies. The mentioned association is at least partly due to the presence of coronary atherosclerosis, microvascular disease and autonomic neuropathy, which are very frequent in patients with this condition. The arrhythmogenic substrate in these cases of ischemic heart diseases includes myocardial re-entry due to scar formation, compensatory hypertrophy in non-infarcted myocardium, progressive ventricular remodeling and neurohormonal abnormalities<sup>2</sup>.

This study compared the measures of some ventricular arrhythmia predictors between DP and controls. Most predictors were more prolonged in the first. These outcomes mean that these patients have a more predisposition to develop malignant ventricular arrhythmias due to an increase in spatial and transmural dispersion. In a previous work, Cardoso et al. observed that prolonged QT interval parameters

were associated with an increased risk of SCD in patients with Diabetes Mellitus<sup>3</sup>. Both studies showed similar outcomes. However, the outstanding feature of the study by Clemente et al<sup>1</sup> is the evaluation of some ventricular repolarization parameters such as Tpeak-Tend and jTpeak-jTend and its dispersions. Although previously the Tpeak-Tend showed to be a predictor of ventricular arrhythmias in other setting<sup>4</sup>, these measures are quite new in clinical practice and further investigations are necessary to assess their real usefulness. For that reason, their characterization in this study is an advance in this field. If further investigations definitely demonstrate the importance of these markers to predict SCD in DP, physicians will have a new tool to design strategies to improve the prognosis of these patients.

A limitation of the article is that the patients were not followed and thus, some of the results shown are uncertain. However, the study by Clemente et al<sup>1</sup> provides novel information that increases our knowledge on such interesting topic. Further prospective investigations with a larger number of subjects should be carried out to identify populations at risk of SCD in the future.

### Keywords

Electrocardiography; Diabetes Mellitus; Death, Sudden, Cardiac; Arrhythmias, Cardiac.

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### References

1. Clemente D, Pereira T, Ribeiro S. Repolarização ventricular em pacientes diabéticos: caracterização e implicações clínicas. *Arq Bras Cardiol.* 2012;99(5):1015-22.
2. Siscovick DS, Sotoodehnia N, Rea TD, Raghunathan TE, Jouven X, Lemaitre RN. Type 2 diabetes mellitus and the risk of sudden cardiac arrest in the community. *Rev Endocr Metab Disord.* 2010;11(1):53-9.
3. Cardoso CR, Salles GF, Deccache W. Prognostic value of QT interval parameters in type 2 diabetes mellitus: results of a long-term follow-up prospective study. *J Diabetes Complications.* 2003;17(4):169-78.
4. Castro Hevia J, Antzelevitch C, Tornés Bázaga F, Dorantes Sánchez M, Dorticós Balea F, Zayas Molina R. Tpeak-Tend and Tpeak-Tend dispersion as risk factors for ventricular tachycardia/ventricular fibrillation in patients with the Brugada syndrome. *J Am Coll Cardiol.* 2006;47(9):1828-34.