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Letter to the Editor

RE: Do electrocardiogram low amplitude QRS complexes predict adverse in-hospital outcomes in patients with takotsubo syndrome?

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We thank Dr Madias for his encouraging feedback and insightful questions related to our recent article in the journal, in which we analyzed all admission ECGs for 215 consecutive patients who were treated at our hospital with takotsubo syndrome (TS) [1]. Dr Madias suggests that the association between TWI and a lower risk of major adverse cardiac events (MACE, defined in our study as death, ventricular tachycardia or fibrillation, atrioventricular block ≥2 or asystole > 10 seconds) in our study could be a case of selection bias. Specifically, he argues that TWI may be more likely to occur later in TS, and patients with TWI at presentation may therefore have already survived the acute phase of TS. We agree with Madias that TWI may be more likely to occur later in the course of TS [2], and we cannot exclude that patients with TWI on their admission ECGs presented to the hospital later in the course of TS than patients without TWI on their admitting ECG. In our study, the majority of the patients presented to the hospital within the first day of symptoms, irrespective of whether they had TWI on their admission ECG (p=0.58). However, because our data were collected retrospectively via review of patients' charts, we were only able to record the duration between symptom onset to admission ECG in days, and we do not have information on the exact time (in hours or minutes) between symptom onset and admission ECG. We are currently conducting a prospective study of patients with TS, in which more detailed information related to symptom duration will be collected, and in which serial in-hospital ECGs are being acquired at defined time-points for all patients. We hope that this study will shed further light on the association between TWI and MACE over the course of the TS.

Dr. Madias interestingly points to the association between myocardial edema, which has been shown to occur in TS [3–5], with both low QRS amplitude and ventricular arrhythmias. Although we did not observe an association between low QRS and MACE in our study, Dr. Madias goes on to inquire whether the loss of QRS amplitude (pre-admission vs. admission or admission vs. subsequent in-hospital ECGs), could predict MACE. In our study, pre-admission ECGs were unfortunately only available for a minority of patients, and subsequent in-hospital ECGs were not acquired in a standardized manner. We are therefore unable to answer this question at this point. However, since we are currently collecting serial in-hospital ECGs at defined time-points in our ongoing prospective study, we hope to be able to revisit this topic soon.

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