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QTc interval, cardiovascular events and mortality in patients with atrial fibrillation

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BACKGROUND
A longer QTc interval has been associated with more adverse cardiovascular events and death in the general population. Little evidence is available on these relationships among patients with atrial fibrillation (AF).

METHODS
We performed a prospective observational multicenter cohort study of 1413 patients with AF. A resting 12-lead electrocardiogram (ECG) was performed at baseline. QT interval was corrected for heart rate using the Bazett formula (QTc). Endpoints for this study included hospitalizations for congestive heart failure (CHF), a combination of cardiovascular death, myocardial infarction, stroke, systemic arterial embolism (MACE) and all-cause mortality.

RESULTS
Mean age of our population was 68±12years and 420 (30%) participants were female. Median QTc was 432ms (interquartile range 409; 457). The mean follow-up time was 3.6±1.5years. After multivariable adjustment, there was a linear increase in risk with increasing QTc interval for incident CHF (hazard ratio (HR) per 1-SD increase in QTc 1.3 [95% CI 1.1; 1.6], p=0.008), MACE (HR 1.2 [1.0; 1.4], p=0.02) and all-cause mortality (HR 1.3 [1.0; 1.6], p=0.002). Results were consistent whether or not patients were in sinus rhythm on the baseline ECG (HR for CHF 1.7 versus 1.3, p interaction 0.08; HR for MACE 1.3 versus 1.2, p interaction 0.9; HR for all-cause mortality 1.4 versus 1.4, p interaction 0.9).

CONCLUSIONS
In this large well-characterized cohort of AF patients, QTc interval was independently associated with adverse outcomes. These results were independent of the rhythm on the baseline ECG.

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