Relations between QRS|T angle, cardiac risk factors, and mortality in the third National Health and Nutrition Examination Survey (NHANES III).

On the surface electrocardiogram, an abnormally wide QRS|T angle reflects changes in the regional action potential duration profiles and in the direction of the repolarization sequence, which is thought to increase the risk of ventricular arrhythmia. We investigated the relation between an abnormal QRS|T angle and mortality in a nationally representative sample of subjects without clinically evident heart disease. We studied 7,052 participants ≥40 years old in the third National Health and Nutrition Examination Survey with 12-lead electrocardiograms. Those with self-reported or electrocardiographic evidence of a previous myocardial infarction, QRS duration of ≥120 ms, or history of heart failure were excluded. Borderline and abnormal spatial QRS|T angles were defined according to gender-specific 75th and 95th percentiles of frequency distributions. All-cause (1,093 women and 1,191 men) and cardiovascular (462 women and 455 men) mortality during the 14-year period was assessed through linkage with the National Death Index. On multivariate analyses, an abnormal spatial QRS|T angle was associated with an increased hazard ratio (HR) for cardiovascular mortality in women (HR 1.82, 95% confidence interval 1.05 to 3.14) and men (HR 2.21, 95% confidence interval 1.32 to 3.68). Also, the multivariate adjusted HR for all-cause mortality associated with an abnormal QRS|T angle was 1.30 (95% confidence interval 0.95 to 1.78) for women and 1.87 (95% confidence interval 1.29 to
2.7) for men. A borderline QRS\(\mid T\) angle was not associated with an increased risk of all-cause or cardiovascular mortality. In conclusion, an abnormal QRS\(\mid T\) angle, as measured on a 12-lead electrocardiogram, was associated with an increased risk of cardiovascular and all-cause mortality in this population-based sample without known heart disease.

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