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THE D-ALLELE OF ACE POLYMORPHISM INCREASED MAGNITUDE OF QT DISPERSION PROLONGATION IN ELDERLY CHINESE – A 4-YEAR FOLLOW-UP STUDY

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BACKGROUND: There has been no longitudinal investigation of the influence of angiotensin converting enzyme (ACE) insertion/deletion (I/D) and angiotensinogen (AGT) M235T gene polymorphisms on the change of QT dispersion (QTd).

METHODS: Of 1500 people screened, 106 participants without organic heart disease or chronic medication provided blood for genetic analysis. Twelve-lead ECGs were recorded at the baseline, at second and fourth year follow-ups. The QTc (corrected QT) interval, QTd and QTc dispersion (QTcd) were manually calculated.

RESULTS: Age was 72.7±4.1 years old (ranges 62 to 81) and 76% were male. QTd and QTcd were significantly prolonged (all $p < 0.001$ at the 2nd and 4th year). At the 4th year the magnitude of QTd prolongation was significantly higher in subjects carrying the ACE D allele than non-D-allele carriers ($p = 0.001$) as well as QTcd ($p = 0.002$). This association was still significant in multivariate analyses ($p < 0.001$ and $p = 0.001$ for QTc and QTcd, respectively). No significant correlation was found between AGT M235T gene polymorphisms and QT variables.

CONCLUSIONS: This longitudinal study showed that the ageing process was associated with prolongation of QTd and QTcd after 4 years of follow-up. Elderly Chinese with the ACE D-allele have a higher magnitude of QTd and QTcd prolongation.

Keyword: QT dispersion, Angiotensin converting enzyme, Polymorphism