

# Heart Rate Variability and QT Dispersion in a Cohort of Diabetes Patients

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QTd is associated with cardiac myopathy and heart failure. However the electrical rhythm disturbances associated QTd have not been thoroughly investigated in people with diabetes. We studied QT dispersion (QTd), an index of inhomogeneity of repolarization, and heart rate variability, a measure of cardiac autonomic modulation an indicator of rhythm disturbance in a cohort of people with and without type II diabetes and no recorded cardiac disease. Our study used a 20 minute Lead II ECG recording to obtain the tone-entropy (T-E) parameter where tone (T) represents sympatho-vagal balance and entropy (E) the autonomic regularity activity . QTd was calculated by the Welsh-Allyn ECG recorder software. The results for the tone and entropy analysis were combined using principle component analysis such that the mean $\pm$ SE of for the control group (QTC $<$ 80msec) and high QTc (QTC $>$ 80msec) group were  $1.009\pm 1.009$  and  $0.578\pm 0.403$  respectively. 21.9% of people with diabetes fell into the  $<80$ msec QTd group and 25% into the  $>80$ msec group, giving a significant difference ( $X_{33,2}=8.83$ ,  $p<0.05$ ). The results for QTd and T-E indicate that the inhomogeneity of repolarization is associated with a decrease in TE reflecting a change in sympatho-vagal and a greater risk of cardiac morbidity and mortality in the diabetes cohort without any overt cardiac symptomatology.