**ELECTROCARDIOGRAPHIC ABNORMALITIES IN SICKLE CELL PATIENTS IN A MAJOR METROPOLITAN CENTER**

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**Background:**Sickle cell disease (SCD) related chronic anemia causes increased cardiac output and stroke volume with minimal increase in heart rate which may result in dilatation of the left ventricle. Sudden death is an increasingly recognized and reported mechanism of death in aging SCD patients. We seek to identify traditional and novel electrocardiographic (ECG) abnormalities in SC patients.

**Methods:**Adults with SC at the University of Texas SC Center were screened. Exclusion were: acute vaso-occlusive crisis, acute coronary syndrome, pregnancy, acute pulmonary embolism, and circulatory shock. ECGs at steady state were retrospectively analyzed. Left Ventricular Hypertrophy (LVH) per Sokolov-Lyon and Cornell Criteria, QTc Interval, QTc dispersion, Tpe interval, Tpe dispersion and Tpe/TQ ratio were measured and analyzed using the multivariate logistic regression.

**Results:**108 SC patients were identified. ECG abnormalities found were: LVH in 30%, QTc prolongation in 40% and prolonged Tpe in 13%. Significantly increased odds of LVH was observed in males (OR 2.76, p=0.068, 95%CI: 0.93-8.27) and in patients requiring **chronic transfusion** (OR:4.5, p=0.007, 95%CI 1.51-13.59); males had significant more odds of **prolonged QTc**(OR:2.86, p=0.015, 95%CI 1.23-6.65) and **prolonged Tpe dispersion**(OR:3.97, p=0.033, 95%CI 1.12-14.11). **Patients receiving chronic transfusion had significantly increased odds of increased Tpe dispersion** (OR 4.06, p 0.023, 95%CI 1.21-13.64), males and patients on chronic transfusion had significantly increased odds of **abnormal Tpe/QTc** (OR 3.84, p 0.034, 95%CI 1.11-13.31), and (OR 3.75, p 0.030, 95%CI 1.14-12.42) respectively.

**Conclusion:**There was a high prevalence of LVH and prolonged QTc in our SCD population. Chronic transfusion and the male gender were markers for higher prevalence of LVH, prolonged QTc and repolarization abnormalities. This study supports the prognostic utility of the resting ECG in assessing cardiac risk in SCD patients. These T-wave mediated repolarization abnormalities have been correlated with sudden death in other disease conditions and should be further assessed as risk tools in SCD.