# Electrocardiographic parameters among beta-thalassemia major patients

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**Background/Introduction:** The majority of beta thalassemia major (β-TM) patients suffer from cardiac disorders, while a significant proportion of them die suddenly. Twelve-lead and signal-averaged electrocardiography are simple, inexpensive, readily available tools for identifying an unfavorable arrhythmiological substrate by detecting the presence of arrhythmias, conduction abnormalities and late potentials (LPs) in these patients.
**Methods:** 47 β-TM patients and 30 healthy controls were submitted to twelve-lead and signal-averaged electrocardiography. Basal rhythm, heart rate, PR interval duration, QRS complex duration and morphology, QTc interval duration and prevalence of LPs were recorded.
**Results:** β-TM patients demonstrated a more prolonged PR segment (167.74 msec vs. 147.07 msec) (p=0.043), a higher prevalence of PR prolongation (21.05% vs. 0%) (p=0.013) and a higher prevalence of LPs (18/47, 38.3% vs. 2/30, 6.7%) (p=0.002) compared with controls. In particular, every single SAECG parameter significantly differed among patients compared with controls. Among patients, left ventricular ejection fraction was marginally lower and QTc more prolonged among LPs positive subgroup compared with LPs negative subgroup. The prevalence of atrial fibrillation among b-TM patients was estimated at 10.64%.
**Conclusions:** β-TM patients have a higher prevalence of a prolonged PR segment, atrial fibrillation and LPs. Twelve-lead and SAECG performance was feasible in all subjects and constitutes a readily available tool for assessing myocardial electrophysiological alterations in this patient group, that could have significant impact on survival and quality of life with timely application of appropriate treatment.