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Systolic Time Interval (STI) in Hypothyroid Patients Receiving High Dose L-Thyroxine

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Introduction: Systolic Time Interval (STI) is a simple,noninvasive and precise technique to assess left ventricular (LV) function. It measures aortic Pre-Ejection Period (PEP) over Left Ventricular Ejection Time (LVET) from echocardiogram. Thyrotoxicosis will enhance LV function and cause reduction of STI. This study was perform to measure the changes of STI after administration of high dose L-thyroxine and to determine the correlation between high dose L-thyroxine administration and STI. **Materials and Method:** A Total of 22 patients were screened. Those with cardiac diseases and high Framingham risk score were excluded. Nine patients were started on high dose L-thyroxine (7x their usual dose) once a week during the month of Ramadan.Thyroid hormones (T3,T4,TSH)Â and STI (PEP/LVET) were measured at baseline and within 24 hrs after high dose L-thyroxine ingestion. **Results:** All patients have normal thyroid hormones level and normal cardiac function at baseline. The median dose (mcg) of L-thyroxine was 600 (437.5,700) while the median level of fT4 (pmol/L) was 17.43(12.38,20.8). Despite the significant increment of fT4 after L-thyroxine ingestion [baseline 13.21(8.19,14.63) vs high dose 17.43(12.38,22.55) p; 0.011] there was no significant change in STI [baseline 0.3(0.2,0.4) vs high dose 0.28(0.26,0.45) p; 0.513]. There was no correlation found between the dose of L-thyroxine and STI (r=0.244 , p;0.526). **Conclusion:** Administration of high dose L-thyroxine did not significantly alter STI despite significant increment of fT4 level unlike the naturally occurring thyrotoxicosis.Therefore ‘exogenous’ administration of high dose L-thyroxine is cardiac safe.