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LONGITUDINAL SYSTOLIC FUNCTION ASSESSMENT BY TISSUE MOTION ANNUAL DISPLACEMENT (TMAD) TO DETECT ANTHRACYCLINE-RELATED CARDIOTOXICITY

**Introduction**

Anthracyclines are commonly used chemotherapeutic agents in many childhood cancers and are known as cardiotoxic agents. Some studies indicate that longitudinal systolic function reduces predominantly in children after anthracyclines therapy and is more sensitive to myocardial damage than radial contraction. Tissue motion annular displacement (TMAD) is a new and rapid parameter for longitudinal function. However, there are few studies to investigate the relationship between the total amount of anthracyclines (ANTdose) and TMAD. [Methods] We studied 57 children receiving anthracyclines to investigate the correlation between ANTdose and LV systolic function parameters. Systolic function parameters included M-mode derived LVEF, biplane modified Simpson’s method-derived LVEF, global longitudinal strain (GLS) and TMAD. Pearson correlation test (r) was used to assess relationships and significance was regarded as a p-value <0.05. [Results] Although M-mode derived LVEF (r = -0.19, p = 0.16) had no correlation with ANTdose, Simpson’s method-derived LVEF (r = -0.38, p < 0.01), GLS (r = 0.47, p < 0.01) and TMAD (r = -0.46, p < 0.01) had the significant linear correlation with it. Simpson’s method, GLS and TMAD had the significant correlation each other. [Discussion] This study indicates that the evaluation of longitudinal systolic function is sensitive for monitoring of dose-dependent cardiotoxicity of anthracyclines therapy. TMAD is especially a reliable and useful marker for early detection of LV dysfunction.