Abstract: P751

Gender differences in 2D ST strain analysis of RTR

Authors:
L Stefani1, CI Ingletto1, SP Pedri2, GP Pedrizzetti3, 1University of Florence - Florence - Italy, 2Esaote-Italy - Florence - Italy, 3Engineering and Architectural Department-University of Trieste , Engineering and Architectural Department-University of Trieste - Trieste - Italy,

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Purpose: Prolonged sedentarism and potential cardiotoxicity for multiple drug’s therapy expose Renal Transplant Recipients (RTR) to an high risk of cardiovascular events. Moderate intensity of physical exercise is often suggested in them, to contrast the negative impact of the comorbidities. 2D Speckle Tracking Strain (STS) analysis is now largely proposed to early detect the eventual myocardial damage. The study aims to evaluate the changes in global longitudinal strain (GLS), mean strain (Lo) and ejection fraction determined from 2D STS before and after participation in a home based aerobic and strength training program in renal transplant patients and to determine if there was a sex difference in the response.

Methods: A group of 30 RTR (12 females and 18 males, aged 47.9 ± 12.3 y, BMI: 24.4 ± 3.9, average age at transplant 38.6 ± 13.1 y) were submitted to Individualized aerobic and resistance exercise programs for at least 12 months.

The exercise was graded by the cycle ergometer test, hand grip dynamometry, bioelectrical impedance and skinfold analysis) with the goal of achieving 150 minutes*wk-1 of activity at moderate intensity (minimal levels were set at 3x*week-1 with a goal of at least 30 minutes*session-1). The were followed by a complete 2D echo examination including strain analysis at T0, T6, and T12 months. Repeated measure ANOVA and a two-way mixed ANOVA with Tukey post-hoc analysis and Bonferroni correction was used to detect differences across time and sex differences.

Results: GLS and Mean Lo strain increase significantly at T6, and maintain high at T12 from baseline (GLS: -17.9 ± 3.3 vs -20.4 ± 3.2 and -20.5 ± 3.8 and Lo: -18.3 ± 3.8 vs -20.4 ± 3.3 and -20.4 ± 3.0 ). No changes in ejection fraction over time (EF % 60.4 ± 5.3 vs 61.8 ± 6.9 and 64.3 ± 6.2, respectively). In men, significantly older at time of transplant (33.8 ± 12.6 vs, 45.7 ± 11.4, p < 0.05) there was significantly lower cardiac function at T0 (-17.1 ± 3.7 vs -19.2 ± 2.2), p <0.05 and accounted with the majority of the improvement in cardiac function in this sample. Conclusions: A moderately intense exercise program was well tolerated by renal transplant patients and significantly improved heart function in men during the initial 6 months of the program which then plateaued. More than EF, 2D ST appear sensible in detecting training adaptations. Studies should investigate the potential role of the GLS in the management of the charge of exercise intensity to improve cardiac function despite unsupervised.