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Association between Left Ventricular Global Longitudinal Strain and Six Minute Walk Test Before and After Chemotherapy with Anthracycline in Breast Cancer Patients

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Abstract:Background: Anthracycline-induced cardiotoxicity is associated with a poor prognosis. We can use Global longitudinal strain (GLS) to detect subclinical left ventricular dysfunction in chemotherapy patient. The distance of 6-minute walk test (6MWT) has been used as a prognostic factor in cancer patients.This study aimed to prove whether there is a correlation between left ventricular dysfunction before there are clinical signs of heart failure and decreased functional capacity of 6MWT in breast cancer patients.
Methods: This is a cohort prospective study of 35breast cancer patients who have chemotherapy with anthracyclineregimen.The patients were evaluated before the initiation of anthracycline therapy, after 3 cycles and 6 cycles. Patients underwentstandard echocardiography and 6MWT at the first visit. After 3 cycle patient underwent echocardiography and after 6 cycle patient underwent echocardiography and 6MWT.
Results: The mean age was 45.83 ± 6.96 years. There was a significant difference in percentage reduction of GLS after chemotherapy 3 cycles and 6 cycles (10.49 ± 4.94 vs. 20.717 ± 9.616, p = 0.001). GLS is correlated with a decrease in total distance 6MWT after 6 cycles (R^2 = -0.084) and the correlation of percentage reduction of GLS and distance of 6MWT has p = 0.028 and R^2 = -0.112.
Conclusion: There is a correlationbetween the percentage reduction of GLS and distance of 6MWT in breast cancer patients with anthracycline chemotherapy for 6 cycles (R^2 = -0.112).
Keyword: GLS, 6MWT, anthracycline, chemotherapy, breast cancer.

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