Chemotherapy treatment changes muscle activation, but not the perception of effort on women with breast cancer

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Objective: The objective of this study was to analyze the effects of chemotherapy cycles on muscle activation (MA) and rated perceived exertion (RPE) in women with breast cancer. Methodology: A total of 21 women were divided into a treatment group (TG) (47.2±11.3 years old) and a control group (CG) of women without cancer (53.7±6.3 years old). The women in the TG had been diagnosed with breast cancer and were undergoing chemotherapy (anthracyclines). MA analyses were performed and RPE between the second and third cycles of chemotherapy (baseline) and post-treatment (fourth cycle). The miotec 200 model electromyograph was used to evaluate the MA, and the root-mean-square values of the rectus femoris and vastus medialis muscles were analyzed during the sit-to-stand test, as well as the RPE at the end of the test (Borg scale). Data is presented as mean and standard deviation. The two-way ANOVA test was used to compare the means between the moments and groups using the post-hoc Bonferroni. The significance level was defined at p<0.05. Results: The TG and CG differed at baseline in the MA of the vastus medialis (188.2±125.3 and 313.6±142.7, respectively; p=0.02) and rectus femoris (138.3±63.1 and 298.5±176.9, respectively; p=0.01). Just like in the post-treatment MA of the vastus medialis (172.7±121.2 and 352.3±198.3, respectively; p=0.01) and rectus femoris (150.5±66.8 and 406.6±282.1, respectively; p=0.00). However, no significant changes were found in the RPE between TG and CG in the baseline (10±2.7 and 11±2.8, respectively; p=0.33) and post-treatment (11.8±3.3 and 11.7±3.1, respectively; p=0.98). Conclusion: Chemotherapy seems to significantly change MA, but not RPE in women with breast cancer when compared with healthy women.

Keywords: breast cancer.