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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). Date 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.