ORIGINAL ARTICLE

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Effect of Aloe Vera and Swimming Training on Serum Levels of Epidermal Growth Receptors (HER2, EGFR), in mice with Breast Cancer

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Abstract

Introduction: The *Aloe vera* plant of the *Liliaceae* family is a known medicinal plant and contains compounds that play an important role in the improvement of inflammatory diseases. On the other hand, exercise plays an important role in the rehabilitation of cancer patients. The aim of this study was to investigate the effect of *Aloe vera* extract and swimming exercise on serum levels of epidermal growth receptors in mice with breast cancer.

Methods: The experiment was implemented for six weeks. Thirty-five mice were randomly divided into five groups: 1- healthy control, 2 - control (cancerous), 3 - exercise (cancerous), 4 - aloe vera (cancerous) and 5-practice + extract (cancerous) groups. *Aloe vera* extract at 300 mg/kgBW/day, was given to the mice. The workout time for the first day was 10 minutes, increasing by five minutes to 60 minutes daily. At the end, serum levels of epidermal growth receptors were measured by the ELISA method.

Results: Consumption of *Aloe vera* extract had a significant effect on levels of HER2 (P=0.017) but did not have a significant effect on EGFR (P=0.576). Endurance swimming training had a significant effect on levels of HER2 (P=0.002), but had no significant effect on EGFR (P=0.769). Also, the use of *Aloe vera* extract with endurance training had a significant effect on HER-2 level (P=0.002), but there was no significant effect on the EGFR (P=0.558).

Conclusion: It is possible that *Aloe Vera* extract and swimming exercise has beneficial effect on the improvement of breast cancer by reducing the excessive expression of HER2 and pro-inflammatory cytokines.

Keywords: Breast Cancer, Aloe Vera, Swimming, Epidermal Growth Factor Receptor 2, Human Epidermal Growth Factor Receptor.

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