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Abstract

Reduced IL-37 gene expression and CD8 T lymphocytes in patients with metastatic breast cancer

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The exact immunopathological mechanisms in the progression of breast cancer are not clearly understood, but various factors including CD8 T lymphocytes have lethal properties on tumor cells. On the other hand, interleukin-37 (IL-37), as a new member of the IL-1 family, is an anti-inflammatory cytokine. The exact role of IL-37 in breast cancer has not yet been determined. This study aimed to evaluate the CD8 T lymphocytes count and IL-37 gene expression in newly diagnosed breast cancer patients with and without metastasis. In this study, blood samples from 36 metastatic and 36 non-metastatic breast cancer patients and 36 healthy individuals as control were collected. After RNA extraction and cDNA synthesis, the relative gene expression was performed using real-time PCR. Also, counting the CD8 T lymphocytes was done by flow cytometry technique. The results of this study showed that the gene expression of IL-37 in blood samples of metastatic and non-metastatic breast cancer patients was significantly lower than in healthy individuals ($P < 0.05$). The relative gene expression of the IL-37 in ER+/PR+/HER2+ patients with non-metastatic breast cancer had a significant increase compared to HER2+ patients ($P < 0.05$). Also, CD8 T lymphocytes count in the samples of patients including non-metastatic and metastatic breast cancer was significantly decreased compared to the healthy individuals ($P < 0.05$). Our findings provide evidence that IL-37 gene expression and CD8 T lymphocytes count, significantly decreased in non-metastatic and metastatic breast cancer. Considering the possible effects of IL-37 on TCD8 cells in tumor

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immune responses, more research will be done to benefit from the therapeutic effects of this cytokine in the future.

Keywords: CD8 T lymphocytes, IL-37, Metastatic breast cancer

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Conflict of interests

The authors have no conflicts of interest to declare.