57 EVALUATION OF THE CIRCULATING LEVELS OF IL-12 AND IL-33 IN PATIENTS WITH BREAST CANCER: INFLUENCES OF THE TUMOR STAGES AND CYTOKINE GENE POLYMORPHISMS

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Background and aims: IL-12 as an anti-tumor cytokine and IL-33 a novel identified cytokine with both pro- or anti-tumor activities, play important roles in response against tumor cells. Our aim was to evaluate the IL-12 and IL-33 levels and single nucleotide polymorphisms (SNP) in their genes in patients with breast cancer.

Methods: Blood samples were collected from 100 patients with breast cancer, and 100 healthy women were controls. The serum IL-12 and IL-33 levels were measured by ELISA. The SNP rs3212227 (in IL-12 gene) and rs1929992 (in IL-33 gene) were determined using PCR-RFLP.

Results: The IL-12 levels similarly expressed in patients and controls. IL-12 levels in patients at stage I were significantly lower than in the healthy group ($P<0.05$). IL-33 levels and the IL-33/IL-12 ratio were significantly higher in patients than the control group ($P<0.001$). The IL-33 levels and IL-33/IL-12 ratio in stage IV patients were significantly higher than other stages and controls ($PP<0.001$, respectively). There were no significant differences in the frequencies of genotypes in rs3212227 and rs1929992 between patients and the control group. No significant differences were observed between subjects with various genotypes at rs3212227 and rs1929992 with respect to related cytokine levels.

Conclusion: These results indicate that the diminished IL-12 production may contribute to the tumor establishment. The higher IL-33 levels and IL-33/IL-12 ratio in patients also indicate an imbalance in Th1/Th2 responses that may contribute to tumor development. Thus, correcting the imbalance of Th1/Th2 could be an important strategy for cancer immunotherapy.