

CXCL8 and CCL2 production in circulating neutrophils in endometrial cancer

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Introduction

Inflammatory chemokines play an essential role in the pro-tumor activity of neutrophils (Nph). Chemokines production is regulated by NF- κ B signaling. Modulating the immunocompetent cells activity is one of the endometrial cancer (EC) treatment strategies.

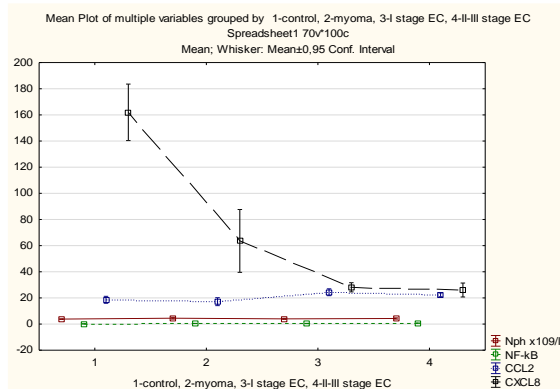
The aim of the study was to evaluate the production of chemokines CXCL8 and CCL2 in circulating Nph in endometrial cancer.

Methods

We studied circulating Nph from the peripheral blood of primary EC patients with FIGO stage I (n = 42) and II-III (n = 16) aged 60.8 \pm 9.2 (37-77) years. The levels of CXCL8, CCL2 (JSC Vector-Best-Volga, Russia) were determined in the Nph lysate, and the nuclear factor NF- κ B (eBioscience, USA) expression was determined in the Nph nuclear fraction by ELISA. The control group included 30 healthy women (23-65 y.o.); the comparison group - 20 patients with uterine myoma (48.8 \pm 6.3 (41-59) y.o.). The study was approved by the ethic committee. Statistical analysis was performed using ANOVA and Spearman correlations

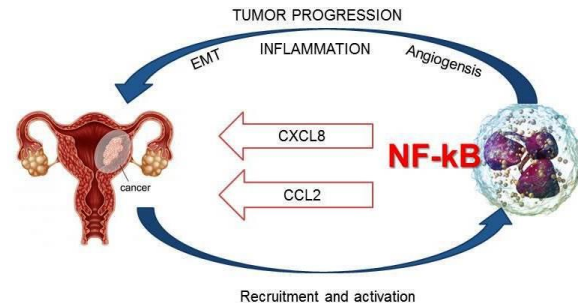
Results

The level of CXCL8 in the Nph lysate in EC was lower than that in the control and in myoma (F(3.67)=90.769, p=0.0001). The level of CCL2 in the Nph lysate was higher in I stage EC (p1=0.0028, p2=0.0027) and II-III stage EC (p1=0.0394, p2=0.0012) relative to the control group and the myoma group.



We revealed an increase in the Nph NF- κ B nuclear expression in myoma (p=0.0001) and EC (p=0.0001) compared with the control;

also, there was a significant correlation with the EC stage (r=0.763, p=0.05). High and very high correlations were present between the levels of NF- κ B and CXCL8, NF- κ B and CCL2 in myoma (r=0.8998, r=0.9376, respectively, p<0.05) and in II-III stage EC (r=0.9273, r=0.8127, respectively, p<0.05).



Conclusion

The NF- κ B-mediated production of CCL2 increases and CXCL8 production decreases in circulating Nph with the endometrial cancer progression, which may indicate functional rearrangements of adaptive immune responses.

The authors declare no conflict of interest