COMPLICATIONS AFTER PRIMARY AND INTERVAL TISSUE EXPRESSION AND PROGNOSTIC ROLES OF CXCL12 AND CXCR4 IN HIGH-GRADE SEROUS OVARIAN CARCINOMA

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Introduction/Background C-X-C motif chemokine ligand 12 (CXCL12), also known as stromal cell-derived factor 1, binds the G-protein-coupled C-X-C motif chemokine receptor 4 (CXCR4). The complex plays an essential role in cancer cell proliferation, invasion, metastasis, and therapeutic resistance. Recently, CXCR4 is also an emerging target as recent studies reported that inhibition of CXCR4 enhanced the effect of anti-programmed death-ligand 1 (PD-L1) immunotherapy. Thus, we aimed to investigate tissue expression of CXCL12 and CXCR4 in high-grade serous ovarian carcinoma (HGSOC) and to determine their potential as prognostic markers.

Methodology We used chemotherapy naïve, formalin-fixed paraffin-embedded (FFPE) primary ovarian cancer tissues obtained from patients with advanced-stage HGSOC at the time of primary cytoreductive surgery. After histological reassessment, we constructed a tissue microarray (TMA) by embedding three blocks. Immunohistochemical staining for CXCL12 and CXCR4 in high-grade serous ovarian carcinoma (HGSOC) and to determine their potential as prognostic markers.

Results A total of 82 FIGO stage IIIIC-IV HGSOC patients were included. High expressions of CXCL12, CXCR4, and both were observed in 23.2%, 50.0%, and 15.9% of patients, respectively. Expression levels were not associated with germline BRCA1/2 mutational status, FIGO stage, or residual tumor after surgery. Multivariate analysis identified high CXCL12 expression as an independent poor prognostic biomarker for progression-free survival (adjusted hazard ratio: 1.990; 95% confidence interval: 1.090–3.963; P=0.025). However, CXCR4 expression was not associated with survival outcomes.

Conclusion CXCL12 expression level serves as a prognostic biomarker for HGSOC prognosis. Proteins related to the CXCL12-CXCR4 complex could be potential therapeutic targets for HGSOC treatment.

Disclosures I have no conflict of interest to declare.