

ABSTRACT

Background: Colorectal cancer (CRC) is both a global and national burden, being the third most common malignancy in men and second in women, worldwide. The prognosis of CRC is affected by various factors like the histological grade, angiolymphatic invasion, and distant metastases. Metastasis is an intricate process; one of the possible mechanisms is through the interaction of the chemokines CXCL12 and CXCR4. This study aims to reveal the expression patterns of CXCL12 and CXCR4 in CRC.

Methods: The quantitative expression of CXCL12 and CXCR4 messenger RNA (mRNA) was evaluated in 32 patients with adenocarcinoma-type CRC. A Real-Time Polymerase Chain Reaction (RT-PCR) was performed on formalin-fixed tissues. CXCL12 and CXCR4's expressions, clinicopathologic features, and the treatment response to the CRC were analysed.

Results: All tumour tissues showed higher levels of both chemokines compared to normal colonic tissue. The expression of CXCL12 was higher in later stage ($p = 0.03$), while the expression of CXCR4 was lower in tumours with a lymphatic invasion ($p = 0.02$), compared to their counterparts. There was no difference in the expression of CXCR4 and CXCL12 according to the patients' ages, gender, tumour differentiation, or response to chemotherapy.

Conclusion: Our study demonstrated that the mRNA expression of CXCL12 was high in late stage CRC and CXCR4 was inversely correlated in tumours with a lymphatic invasion.

Keywords: colorectal cancer, CXCL12, CXCR4, clinicopathologic factors

INTISARI

Latar belakang: Karsinoma kolorektal adalah beban morbiditas dan mortalitas yang disebabkan keganasan baik secara global dan nasional. Prognosis karsinoma kolorektal dipengaruhi berbagai faktor seperti derajat histologis, invasi angiolimfatik, dan metastasis jauh. Metastasis adalah proses rumit; salah satunya melalui interaksi kemokin CXCL12 dan CXCR4. Studi ini bertujuan mengamati pola ekspresi mRNA CXCL12 dan CXCR4.

Metode: Ekspresi kuantitatif *messenger RNA* (mRNA) CXCL12 dan CXCR4 diobservasi pada 32 pasien dengan adenokarsinoma kolorektal. Pemeriksaan dengan *Real-Time Polymerase Chain Reaction* (RT-PCR) dilakukan pada blok parafin. Hubungan asosiasi ekspresi CXCL12 dan CXCR4, fitur klinikopatologis, dan respon terapi dianalisa dengan uji beda.

Hasil: Semua jaringan tumor menunjukkan tingkat ekspresi lebih tinggi dibandingkan jaringan kolon normal. Ekspresi CXCL12 lebih tinggi pada stadium akhir ($p = 0.03$). Ekspresi CXCR4 lebih rendah pada tumor dengan invasi limfatik ($p = 0.02$). Tidak terdapat perbedaan antara ekspresi CXCL12 dan CXCR4 menurut usia, jenis kelamin, diferensiasi tumor, maupun respon terapi.

Kesimpulan: Penelitian ini menunjukkan bahwa ekspresi mRNA CXCL12 lebih tinggi pada karsinoma kolorektal stadium akhir dan CXCR4 terekspresikan lebih rendah pada tumor dengan invasi limfatik.

Kata kunci: karsinoma kolorektal, CXCL12, CXCR4, faktor klinikopatologis