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Elevated expression of CXCR4 and correlation with clinicopathological features and prognosis of non-small cell lung cancer patients: a meta-analysis

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ABSTRACT. The specific correlation between CXCR4 expression and survival in non-small cell lung cancer (NSCLC) has been investigated independently; however, these have yielded inconsistent results. Therefore, we examined the exact relationship between CXCR4 expression and NSCLC in this meta-analysis. The bibliographic databases in English and Chinese were carefully searched and data regarding the prognostic value of CXCR4 and its association with pathological parameters of NSCLC were collected. Pooled odds ratios (OR) with 95% confidence interval (CI) were applied. A total of twelve studies (CXCR4 positive cases = 565, CXCR4 negative = 755; 2003-2013) that matched our predefined criteria were finally incorporated into our study. The pooled OR revealed that expression of CXCR4 in NSCLC patients was apparently correlated with lymphatic

metastasis, distant metastasis, and TNM stages (lymphatic metastasis: OR = 1.91, 95%CI = 1.21-3.27, P = 0.018; distant metastasis: OR = 4.81, 95%CI = 1.69-13.66, P = 0.003; TNM stages: OR = 3.91, 95%CI = 1.22-12.55, P = 0.022). Positive expression of CXCR4 was also strongly correlated with a shorter overall survival (OS) rate in NSCLC patients (hazard ratio = 2.10, 95%CI = 1.21-2.99, P < 0.05). Further stratification by ethnicity indicated a negative association between CXCR4 expression and NSCLC development and prognosis in Asians NSCLC patients in all four models (P < 0.05). This indicated that elevated CXCR4 expression may be correlated with aggressive metastasis, advanced TNM stages, and shorter OS rate in NSCLC patients, suggesting a poor prognostic outcome of this disease.

Key words: CXCR4; Non-small cell lung cancer; Protein expression; Meta-analysis

