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Prognostic significance of tumor-associated macrophage infiltration in gastric cancer: a meta-analysis

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ABSTRACT. Tumor-associated macrophages (TAMs), which play a crucial role in the tumor microenvironment, can be divided into M1 and M2 phenotypes, these phenotypes may exert opposite effects on the prognoses of patients with gastric cancer (GC). The association between TAMs and GC is contentious. Thus, a meta-analysis of 12 studies (incorporating 1388 patients) retrieved from the Cochrane Library, PubMed, and Embase databases was conducted in order to evaluate the relationship between TAMs and GC prognosis. Hazard ratios (HRs) with 95% confidence intervals (CIs) were pooled to explore the effect of these cells on survival of GC patients. Our results implied that high

total TAM infiltration levels correspond to worse overall survival (OS) in patients with GC (HR = 1.70, 95%CI = 1.39-2.09; P < 0.001), and a similar result was observed in relation to M2 macrophage infiltration (HR = 1.71, 95%CI = 1.19-2.45; P = 0.004). In contrast, elevated M1 macrophage density in GC patients was associated with better OS (HR = 0.46, 95%CI = 0.33-0.65; P < 0.001). This meta-analysis showed that the numbers of infiltrating M2 macrophages and total TAMs might be negative prognostic factors for patients with GC, while M1 macrophage infiltration may be associated with a favorable survival rate.

Key words: Tumor-associated macrophages; Gastric cancer; Prognosis; Meta-analysis