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Metastasis-Associated Protein S100A4 and p53 Predict Relapse in Curatively Resected Stage III and IV (M0) Gastric Cancer

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Abstract

Purpose: Pathologic stage is the most important predictive factor of relapse in gastric cancer after curative resection. However, patients with the same stage often have different risks of relapse. Here, we investigated whether the expressions of molecular markers can supplement the current staging system in terms of relapse prediction. Patients and Methods: One hundred and nine stage III or IV (M0) patients who had received curative gastrectomy followed by adjuvant 5-fluorouracil and cisplatin chemotherapy were included in this study. The expressions of molecular markers including p53, p27, COX-2, HER-2, EGFR, maspin, S100A4, E-cadherin, Sp1, and p97 were analyzed by immunohistochemistry in cancer and paired normal tissues. Results:

The overall relapse rate was 58.7%, and pathologic stage was a significant predictive factor of relapse (42% in stage IIIA, 48% in IIIB, 76% in IV, p = 0.005). Of the 10 markers examined, p53 and S100A4 were expressed only in tumor tissues, and S100A4 expression was significantly associated with a higher relapse rate (85% vs. 53%, p = 0.008). In multivariate analysis including tumor stage, S100A4 and p53 expression were independent predictive factors of relapse (relative risk, 6.98; 95% confidence interval [CI], 1.608-30.342, 3.49; 95% CI, 1.328-9.186, respectively). On comparing patients who expressed S100A4 or p53 with those who expressed neither, relapse rates were 58% vs. 25% in stage III (p = 0.011) and 95% vs. 59% in stage IV (M0) (p = 0.003). Conclusion: In addition to staging system, the expressions of S100A4 and p53 were significant predictive factors of relapse in gastric cancer after curative resection and adjuvant chemotherapy.

Keywords:

Gastric cancer | Relapse | Immunohistochemistry | S100A4 | p53