

Pilot research for the correlation between the expression pattern of E-cadherin- β -catenin complex and lymph node metastasis in early gastric cancer

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ABSTRACT

Aims and background. Early gastric cancer without lymph node metastasis can be treated with minimally invasive endoscopic surgery. Hence, a better modality for predicting lymph node metastasis should be beneficial to early gastric cancer patients who may only require minimally invasive treatment. *In vitro*, phosphorylation of β -catenin induces the loss of membranous β -catenin and E-cadherin, subsequently increasing the potential for metastasis. We investigated the behavior of these molecules comparing lymph node metastasis-positive and lymph node metastasis-negative groups, using the specimens from the patients with early gastric cancer. This was a pilot research evaluating the usefulness of combined analysis of these molecules in predicting lymph node metastasis in early gastric cancer.

Methods. The clinicopathological features and immunohistochemical expression patterns of E-cadherin and β -catenin in the primary lesion were studied retrospectively in 28 patients (lymph node metastasis-positive *versus* lymph node metastasis-negative: 14 *vs* 14) selected from 272 patients. These patients underwent radical surgery for the early gastric cancer treatment from April 2000 to March 2004 at our hospital. All patients gave written informed consent to use their tissues for the clinical study. Statistical analyses were performed by the chi-square test and Mann-Whitney test.

Results. More loss of membranous E-cadherin was observed in the lymph node metastasis-positive group than in the lymph node metastasis-negative group. Although the finding was slightly more marked in the intestinal than in the diffuse type early gastric cancer, there was no statistical significance. Loss of membranous β -catenin showed a similar trend and no statistical significance. When we evaluated the expression patterns of both molecules, dual loss of membranous E-cadherin and β -catenin significantly correlated with lymph node metastasis [dual loss in lymph node metastasis-positive *versus* lymph node metastasis-negative patients: 12 (86%) *vs* 6 (43%), $P = 0.046$]. Additionally, corresponding proportions in intestinal type early gastric cancer were 5 of 6 (83%) *vs* 0 of 6 (0%), $P = 0.015$.

Conclusions. Based on our results, the combined analysis of E-cadherin and β -catenin localizations may be helpful to accurately predict lymph node metastasis in intestinal type early gastric cancer.

Key words: early gastric cancer, E-cadherin, lymph node metastasis, β -catenin.

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