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A Pilot Multicenter Study Evaluating the Expression of p53 and ki-67 in Gastric Tumors and Their Utility for Guiding Treatment Strategy

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ABSTRACT

Background: p53 mutation is the most common genetic alteration in cancers and influences clinical progression. Ki-67 protein is a cellular marker for proliferation in cancer or premalignant lesion. The aim of this study is to investigate whether p53 and Ki-67 measurements in gastric tumors would be helpful in determining treatment strategy.

Methods: Immunohistochemical staining using monoclonal antibodies to p53 and Ki-67 was performed on specimens from 29 gastric adenomas (GA) by endoscopic submucosal dissection (ESD) and 240 gastric cancers (GC) by ESD or gastrectomy. Tumor cells with nuclear p53 and Ki-67 protein expression were arbitrarily graded into four groups: < 10 % = negative, 10-30 % = 1+, 30-60 % = 2+, and > 60 % = 3+.

Results: The mean tumor sizes in the GA and GC groups were 17.3 ± 11.4 mm and 32.0 ± 20.9 mm respectively ($P < 0.001$). p53 positivity was not different between the GA and GC groups ($P = 0.149$), but Ki-67 positivity was significantly different between the 2 groups ($P = 0.001$). In addition, Ki-67 positivity tended to be increased as the pathologic progression changed from adenoma to cancer.

Conclusions: Ki-67 positivity grade seems to be correlated with malignancy potential. Even if endoscopic biopsy showed low grade dysplasia, in lesions with high Ki-67 positivity, it is better to consider active ESD rather than just long-term follow up.

Key words: Gastric adenoma, Gastric cancer, Immunohistochemistry, p53, Ki-67.