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p53 immunostaining positive cells correlated positively with S phase cells as measured by BrdU in the esophageal precancerous lesions from the subjects at high incidence area for esophageal cancer in northern China

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Abstract

AIM: To characterize the S phase cell distribution as measure d by BrdU in esophageal precancerous lesions and to correlate the changes of *p53* protein accumulation with S phase cell proliferation for further undrstanding the mechanism of *p53* protein accumulation in esophageal carcinogenesis .

METHODS: One hundred and nine symptom free subjects from Henan were examined with endoscopy and histopathologically. The biopsies from the esophagi were incubated with BrdU for 1 h and then fixed with 85% ethanol, embedded in paraffin and cut at 5 μm for H&E staining and immunohistochemistry (ABC). Quantitative analysis was performed by recording the positive immunostaining cells for *p53* and BrdU per mm^2 of the tissue section.

RESULTS: Histopathologically, 53 subjects were found with normal esophageal epithelia, 46 with basal cell hyperplasia and 10 with dysplasia. In tense nuclear immunostaining for *p53* and BrdU was observed in the normal and different severity of esophageal lesions. Quantitative analysis showed that the positive immunostaining cells for *p53* was low in normal (70 ± 31, mean ± *s*), and increased in basal cell hyperplasia (91 ± 82, mean ± *s*), and dramatic ally increased in dysplasia (402 ± 48, mean ± *s*) ($P < 0.05$). On the other hand, BrdU positive cell number increased with disease progressing and was a little lower than that of *p53* in normal and basal cell hyperplasia, but much lo wer in dysplasia (402 *vs* 98). *p53* immunostaining positive cells correlated positively with S phase cells as measured by BrdU with the epithelia progressing from norm al to basal cell hyperplasia and to dysplasia ($P < 0.05$).

CONCLUSION: BrdU is an valuable biomarker to measure cell proliferation of esophageal biopsy. *p53* immunostaining positive cells correlated positively with S phase cells as measured by BrdU during the disease progressing, which can be explained by the loss of normal *p53* function due to mutation.

Key words: Esophageal neoplasms; *p53* protein; Preca ncerous condition; BrdU

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