Significance of p57Kip2 down-regulation in oncogenesis of bladder carcinoma: an immunohistochemical study

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ABSTRACT

Aims and background. Cyclin-dependent kinase inhibitors have important roles in the oncogenesis of various tumors including urothelial cancer. The aim of this study was to establish the importance of p57Kip2, a unique cyclin-dependent kinase inhibitor, in the oncogenesis of bladder carcinoma. This article also focused on another cyclin-dependent kinase inhibitor, p27Kip1, and telomerase enzyme and examined the relationship between these proteins.

Material and methods. Thirty-one patients with urothelial carcinomas of the bladder and 7 cases with normal urinary bladder mucosa were included in the study. Immunohistochemical study was performed by monoclonal antibodies of p27Kip1, p57Kip2, and the telomerase subunit (hTERT). All immunohistochemical preparations were evaluated by an immunohistochemical histological score.

Results. p57Kip2 and p27Kip1 expression were seen in all of the cases of normal mucosa. In carcinoma cases, 8 of 31 (25.8%) showed p57Kip2 nuclear positivity and 20 of 31 (64.5%) expressed nuclear p27Kip1. HSCOREs of carcinoma cases showed lower scores of nuclear p57Kip2 and p27Kip1 than normal mucosa, but only HSCOREs of nuclear p57Kip2 (P = 0.001) showed statistical significance. Despite unknown significance, cytoplasmic p57Kip2 and p27Kip1 were also evaluated. Immunohistochemical analysis showed that carcinomas expressed higher HSCOREs of hTERT than normal mucosa, and there was a significant difference (P = 0.026) between muscle invasive carcinomas and normal mucosa.

Conclusions. The data showed that p57Kip2 down-regulation along with p27Kip1 is a well-established feature of urothelial carcinoma. Probably, this down-regulation of cyclin-dependent kinase inhibitors supports the proliferation phase of oncogenesis. In the study, we also showed that hTERT expression was up-regulated in higher stages of urothelial carcinoma.

Key words: bladder, hTERT, p27Kip1, p57Kip2, urothelial carcinoma.

Acknowledgments: The project was supported by Kırıkkale University Scientific Research Organization (BAB).

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Received October 5, 2007; accepted January 28, 2008.