Tumori, 97: 79-85, 2011

Prognostic significance of p53 protein and X-ray repair cross-complementing protein 1 in non-small cell lung cancer

Silvia Rybárová[1], Ingrid Hodorová[1], Jozef Muri[2], Jozef Mihalik[1], Marian Adamkov[3], Marián Svajdler[2], Dalibor Piovarci[2], and Ladislav Mirossay[4]

[1]*Department of Anatomy, PJ Safárik University, Faculty of Medicine, Kosice;* [2]*National Institute for Tuberculosis, Lung Diseases and Thoracic Surgery (NÚTPCHaHCH), Vysné Hágy;* [3]*Institute of Histology and Embryology, Jessenius Faculty of Medicine, Comenius University, Martin;* [4]*Department of Pharmacology, PJ Safárik University, Faculty of Medicine, Košice, Slovakia*

ABSTRACT

Objectives. p53 and XRCC1 protein expression were evaluated in 54 samples of non-small cell lung cancer.

Patients and methods. The immunohistochemical method was used for detection of the monitored proteins. Tissue samples were divided according to histopathological tumor type. The results were then compared with basic clinical and histopathological parameters (histopathological type, nuclear grade and TNM tumor stage IA, IB).

Results. Statistically significant correlations were found between histopathological type and p53 expression, since $P < 0.05$ ($P = 0.015$). Comparing p53 expression with grade resulted in a strong positive correlation ($P < 0.0396$, $R^2 = 0.9223$). The percentage of p53-positive tumors progressively increased from 0% in grade 1 to 75% in grade 4. No correlation was found between p53 expression and tumor stage. In case of XRCC1, the highest level was found in squamous cell lung carcinoma, where 71% of samples was positive. In case of large cell carcinoma samples, it was 67%, and in adenocarcinoma 52% of samples showed XRCC1 immunoreactivity. No statistically significant correlation was found between histopathological type, grade or early stage (IA, IB) of non-small cell lung cancer and expression of XRCC1 protein profile without neoadjuvant therapy.

Conclusions. We found a statistically significant correlation between p53 expression and histopathological tumor type. It is possible that stabilized p53 protein plays an important role in the development of squamous and large cell carcinoma. Our findings also suggest that p53 expression cumulates with the dedifferentiation of cancer cells. It is possible that the expression of XRCC1 is not fixed and could be changed by the status of cancer cells and in relation to therapy. Relevant data about pre- *versus* post-chemotherapy and XRCC1 expression are needed to evaluate the influence of XRCC1 on drug resistance. Free full text available at www.tumorionline.it

Key words: immunohistochemical analysis, lung cancer, p53 protein, XRCC1.

Acknowledgments: We gratefully thank Bc Ivana Perunská, Mrs Katarína Bodnárová and Mrs Mária Zátorská for their skillful technical assistance. The work was supported by Vega grant 1/0388/08, Ministry of Education, Slovak Republic.

Correspondence to: Silvia Rybárová, MVD, PhD, Department of Anatomy, PJ Safárik University, Faculty of Medicine, Srobárova 2, SK-04180 Kosice, Slovakia.
Tel +421-55-234-1236;
e-mail silvia.rybarova@upjs.sk

Received May 11, 2010;
accepted October 29, 2010.