Association between expression of DNA mismatch repair genes and clinical features and prognosis of patients with radical resection of colon cancer

J.B. Wang1*, D.L. Ma2*, J.Y. Li2, Q.D. Sun1 and Y.E. Liu1

1Department of General Surgery, Yishui Central Hospital of Linyi, Linyi, Shandong, China
2Department of Medical Oncology, Yishui Central Hospital of Linyi, Linyi, Shandong, China
3Department of Infectious Diseases, Yishui Central Hospital of Linyi, Linyi, Shandong, China

*These authors contributed equally to this study.
Corresponding author: Y.E. Liu
E-mail: 2369475216@qq.com

Received January 7, 2016
Accepted March 28, 2016
Published August 18, 2016
DOI http://dx.doi.org/10.4238/gmr.15038388

Copyright © 2016 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution ShareAlike (CC BY-SA) 4.0 License.

ABSTRACT. The aim of this study was to investigate the clinical significance of the expression of DNA mismatch repair (MMR) genes in patients subjected to radical surgical removal of colon cancer, as well as their correlation with disease prognosis. Ninety stage II and III colon cancer patients who received laparoscopic radical resection of colon cancer at our hospital were recruited in this study. The expression of hMLH1, hMSH2, hMSH6, and hPMS2 in the resected tumor tissues was examined by SP immunohistochemistry, in order to analyze the
relationship between defective DNA MMR (dMMR) and the clinico-pathological features and prognosis of colon cancer. Patients were followed up over a period of 5-35 months, and the Kaplan-Meier survival curve was plotted. dMMR was confirmed in 27 subjects (30.0%), among whom recurrence with metastasis and death was reported in 5 (18.5%) and 2 (7.4%) patients, respectively. The remaining 63 subjects displayed proficient DNA MMR (pMMR); among these, 19 (30.2%) and 7 (11.1%) recurrences with metastasis and death were reported, respectively. dMMR showed no significant correlation with gender, age, or therapeutic modality (P > 0.05), but was significantly correlated with the degree of differentiation, tumor location, number of resected lymph nodes, presence of ileus, and TNM stage (P < 0.05). The prognosis of patients with dMMR was better than that of patients with pMMR. dMMR serves as a biomarker for the prognosis of stage II/III colon cancers.

Key words: Colon cancer; Radical resection of colon cancer; DNA mismatch repair gene; Prognosis