Changes in T-lymphocytes in lung cancer patients after hyperthermic intraperitoneal chemotherapy or radiotherapy

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Received October 20, 2015
Accepted January 15, 2016
Published June 10, 2016
DOI http://dx.doi.org/10.4238/gmr.15027865

ABSTRACT. We investigated dynamic changes in T-lymphocyte subsets after hyperthermic intraperitoneal chemotherapy (HIPEC) or radiotherapy using flow cytometry. A total of 1423 lung cancer patients admitted to our hospital between October 2012 and July 2015 were enrolled, and age-matched healthy individuals served as controls. Peripheral blood mononuclear cells (PBMCs) were purified using standard Ficoll density gradient centrifugation, based on which CD3+, CD4+, and CD8+ T-cells were isolated. A surface marker was identified by flow cytometry. Immunohistochemical analysis determined the distribution of the cells in the tumor mass or adjacent tissues. A total of 957 patients (male: 555; female: 402; median age: 49.3 years) with lung cancer who had received only HIPEC or radiotherapy were enrolled. The patients were followed-up until death. No statistical difference was noticed between the patients who had received chemotherapy compared with the baseline levels. A remarkable elevation was noticed in the CD3+ T-cells in the patients three months after radiotherapy (78.71 ± 9.36 vs 68.15 ± 9.65, P < 0.05). The level of CD8+ in the patients who had received chemotherapy or radiotherapy was remarkably elevated in
the post-treatment period (P < 0.05). The CD3+ and CD8+ T-cells were mainly expressed in the cytoplasm rather than in the adjacent tissues. The expression of CD3+ and CD4+ was correlated to tumor infiltration and metastasis. Remarkable elevation was noticed in the CD3+ T-cells in the patients three months after radiotherapy. The expression of CD3+ and CD4+ was negatively correlated to tumor infiltration and metastasis in non-small-cell lung cancer patients.

**Key words:** Lung cancer; T-lymphocytes; CD3+; CD4+; CD8+