Tumor immunology and Aspergillus infection: a longitudinal study [Study]

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With many patients with tumors that are essentially metastatic still carrying certain biomarkers and immune system responses, it is noteworthy that those who develop disease-specific immune response against the true pathogen, such as Aspergillus, have an improved prognosis. Yet, this critical milestone for analyzing individual immune response, which has long eluded us, has recently emerged. In a study published in the journal Cancer Immunology and Immunotherapy, our research group presented the first longitudinal database study of the immunological response to Aspergillus among patients with lung cancer.

We based our results on a subset of lung cancer patients who were followed up for three years of follow-up from their registration. We compared the self-assessed vaccine response to Aspergillus as a potential antitumor agent, with those who did not develop such a response, given that both groups were enrolled at the same place. We found that, of 1,138 patients at the time of enrollment, 463 patients (13.3%) still had an antigens-inhibiting immune response against Aspergillus. All patients who were positive for Aspergillus but who do not have LSP positive lung cancer in clinic also had this type of response. Furthermore, similar to other human tumor immunotherapies, this response acquired a statistically significant pattern of improvement as the time elapsed and scores improved over one year and subsequently for 1.5 years. As a result, a significant number of patients achieved a remission result which is substantial because a tumor is usually incurable.

To further study this novel set of studies, we conducted laboratory studies on cancer cells from lung cancer patientsâ€™ tumescence. We found antibodies against Aspergillus in human tumor cell lines exposed to human tumor antigens. These antibodies generated a response in human hepatocytes by increasing affinity against Aspergillus antibodies. These experimental findings indicate that similar mechanisms support normal immune responses to Aspergillus and other allergenic antigens. Future studies of human tumor immunology, as well as the wide variety of oncogenic and nontransfectious allergenic agents and allergen itself are needed to fully investigate the immunological identity and mechanistic contributions of such stimuli for optimal anti-tumor immunity.

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