Michael A Tainsky, J Clin Cell Immunol 2017, 8:5 (Suppl)
DOI: 10.4172/2155-9899-C1-038

Michael A Tainsky

Wayne State University School of Medicine, USA

Paraneoplastic antigens as biomarkers for early detection and prediction of recurrence of ovarian cancer

Routine disease monitoring of ovarian cancer patients is generally recommended by gynecologic oncologists for women from high-risk families and for ovarian cancer patients during after the completion of primary surgery and first-line chemotherapeutic treatments. The recurrence is determined by measuring the level of serum CA125, one of the most extensively used tumor biomarkers in standard clinical practice for disease surveillance. Numerous studies have shown the role of tumor autoantibodies as biomarkers for ovarian cancer diagnosis and its recurrence. These autoantibodies to tumor associated antigens (TAAs) arise due to the generation of humoral immune response before evidence of clinical symptoms in cancer patients. Previously we showed that a 3 biomarker panel predicted ovarian cancer recurrence at a median lead time of 9.07 months with 94.7% sensitivity, 86.7% specificity, and 93.3% accuracy, in a cohort of ovarian cancer patients where normalization of CA125 had occurred after the surgery and completion of chemotherapy. One of those biomarkers was a peptide epitope from a known paraneoplastic antigen, HARS. Paraneoplastic antigens can elicit a humoral immune response in cancer patients as these antigens are expressed in the cells of nervous system and tumor. The appearance of these onconeural antibodies in ovarian cancer patients leads to the development of various neurological disorders called paraneoplastic syndromes, particularly dermatomyositis or polymyositis but can precede the occurrence of dermatomyositis or polymyositis. Although the clinical implication of these onconeural antibodies as biomarkers for early diagnosis of ovarian cancer has been reported in many case studies, the usefulness of these antibodies has yet to be evaluated in monitoring disease status in ovarian cancer patients after cytoreductive surgery and chemotherapy treatments. In the present study we evaluated the role of a panel of 3 recombinant paraneoplastic antigens, HARS, CDR2 and Ro52 in combination with 3 of our previous biomarkers in predicting recurrence in new and independent cohort of ovarian cancer patient population in which most of the patients had no elevation in CA125 level months before their clinical recurrence. Our results indicate that autoantibodies to HARS, Ro52 and CDR2 and 5H6 antigens predicted ovarian cancer recurrence 5.03 months before the clinical or symptomatic relapse in 21 ovarian cancer patients with a sensitivity of 90.5% when CA125 levels were below the standard cutoff (35 U/ml). We have expanded the biomarker panel and test a larger sample size for the early detection of ovarian cancer using a newly developed ELISA protocol employing a large number of sera from patients and women with benign gynecological diseases.

Biography

Michael A Tainsky earned his bachelor's degree with honors in chemistry at New York University in 1971 and his PhD in Molecular Biology at Cornell University, Ithaca, NY in 1977. He came to the Barbara Ann Karmanos Cancer Institute in 1998 after 13 years on the faculty of the MD Anderson Cancer Center in Texas. As Director of Molecular Biology and Genetics he has developed programs that are a fusion of community outreach, laboratory research and clinical diagnostics research. He has published over 140 scientific papers and holds the Barbara and Fred Erb Endowed Chair in Cancer Genetics. He has mentored the research training of 40 graduate students and fellows. He is on the editorial board of 6 scientific journals. He has been the recipient of more than 25 peer-reviewed research grants. His lab has been studying molecular genetic mechanisms by which cells convert from normal to cancer since 1985. Over the past 10 years his research has focused on the development of novel cancer diagnostics tests for the early detection of cancer in the form of a complex blood test..

tainskym@med.wayne.edu