

Studying the Proteomic Pattern of Cancerous Tissue in Patients Breast Cancer and Comparing Healthy Breast

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Abstract

Background: Breast cancer is the most common cancer in women in most areas of the world. In Iran and Guilan province, frequency of this type of cancer has shown an increasing rate according to statistics of health centers of province in recent years. Despite of efforts on early diagnosis and treatment, this type of cancer is still the second leading cause of deaths due to cancer in women.

Objectives: This study aimed at obtaining protein biomarkers that may be useful in diagnosis and treatment of breast cancer.

Patients and Methods: In this experimental study, 10 patients with proved breast cancer and 10 patients with healthy breast, healthy and cancerous tissue samples were obtained to perform proteomics. All tissue proteins were purified using standard separation methods and proteins were separated using two-dimensional electrophoresis. Healthy and tumorous tissue proteomes were compared and the extent of protein expression was analyzed.

Results: Four hundred fifty four proteins were recognized, 138 of which were identified with changes in protein expression while cancerous. The expression of 61 proteins in tumorous group was suppressed. Three proteins showed increased expression while cancerous and 74 proteins showed decreased expression in cancerous tissue.

Conclusions: It seems that in this disease, the expression of a large number of proteins in cancerous tissues changed, most of them decreased or not expressed at all. These changed proteins can be effective as biomarker in diagnosis and treatment of this disease.

Keywords: Proteomic Pattern; Cancerous Tissue; Healthy; Breast Cancer