Breast Cancer in MENA Populations

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Breast cancer is the most frequent malignancy in Middle East and North Africa (MENA) women, accounting for over one-third of the cancers. Over the past 10 years, breast cancer incidence has increased progressively in the region, with the highest rates found in the nationals of Qatar and Bahrain.

In recent years, several chemotherapy drugs have been introduced that have promoted a significant decrease in breast cancer mortality. We believe that advances in research techniques, particularly genomic and proteomic approaches that focus on the genes and proteins involved in cancer and its growth, will contribute to a more significant decrease in breast cancer mortality in the coming years.

At Weill Cornell Medical College in Qatar, we are currently studying inflammatory breast cancer, a type of cancer that affects only about one to two percent of patients in the United States and Europe but represents between 12 and 15 percent of cases in MENA populations. Inflammatory breast cancer, which takes over as an inflammation of the entire breast rather than emerging as a lump, is a highly aggressive form of the disease that progresses rapidly and often results in death.

If we can identify the genes and proteins underlying this aggressive form of breast cancer, we can begin to identify and understand the mechanisms underlying the transition from local and controlled breast cancer to the more aggressive form.

Breast cancer diagnosis and prognosis is traditionally based on clinical disease criteria defined by pathologists. These criteria divide breast cancer into two types in terms of prognosis: in situ or localized, and invasive.

We do know that in situ tumors are associated with good prognosis, while invasive tumors are associated with poor prognosis. The disease is much more complicated at the level of genes and proteins, and we believe more precise ways of predicting the onset and progression of the disease can be discovered.

Some recent research findings at the genetic level already show potential to impact treatment. One study that explored genetic differences based on patients’ response to treatment indicated that patients with a poor response to treatment couldn’t process the administered anti-cancer drugs. By studying the genes of these patients with powerful imaging technology, researchers were able to decode the “genetic signature” of the patients who were non-responsive to the treatment.
In another recent study comparing tumor cells and non-tumor cells from Tunisian patients with breast cancer, researchers found the tumor cells did not allow the expression of certain proteins that prevented cellular activity related to cancer.

Based on the results of studies such as these, we believe basic science research can eventually help in the development of new methods of diagnosis and treatment of the disease.

With colleagues in Tunisia, Lebanon, Jordan and the United States, we have initiated a research consortium to promote collaborative studies of breast cancer, and our work was recently awarded a sizeable grant from Qatar Foundation’s National Priorities Research Program.

Our objective is to identify genetic characteristics and molecular biomarkers of particular subtypes of breast cancer and assess their implications for preventative and predictive measures for the MENA populations.

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