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Molecular classification of breast cancer and role of immunohistochemistry for detection of cell types that predicts response to chemotherapy with Santinib (P53)

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Breast cancer is a heterogeneous group of malignant lesion resulted by abnormal gene expression within neoplastic cells. Recent advances in molecular techniques have enabled researchers to identify the gene expression, fingerprint, of individual tumors that would help predict the clinical course and select specific treatment. Molecular techniques have also been used to refine the classification of special type cancers. Four major molecular subgroups of breast cancer normal-like, luminal (ER-positive), basal-like (mostly ER-negative), or erbb2+ (mostly HER-2 amplified) have been previously defined, based on expression of 424 genes involved in cancer development. Scientists have already shown that each subgroup has a different prognosis as luminal A, luminal B, HER2 and basal-like types. Luminal A cancers are ER+ and/or PR+, HER2- and have a Ki67 labeling index <14%. Luminal B tumors are either ER+ and/or PR+ and HER2+ (the luminal-HER2 subtype) or ER+ and/or PR+ with a Ki67 labeling index >14%. HER2 tumors are ER-, PR and HER2+. As discussed below, basal-like cancers are most commonly ER-, PR-, HER2- and show expression of CK5/6 and/or EGFR.

The classification of breast cancer into molecular subgroups may be needed in order to develop the most accurate predictors of treatment response. In our experience, different sets of genes present in different molecular subgroups may determine the response to a particular regimen of chemotherapy. Luminal A type breast carcinoma shows better prognosis and best response to endocrine therapy and less response to chemotherapy. Patients with basal like are heterogeneous group of young age victims and triple negative with poor prognosis but shows good response to chemotherapy (Taxol/FAC). The cancers having extra copies of the HER2 gene and several other genes are called HER2 group. They usually have a high-grade appearance under the microscope. These cancers tend to grow more quickly and have a worse prognosis, Women with a relatively uncommon type of breast cancer are significantly more likely to face its recurrence and spread, Although they often can be treated successfully with targeted therapies such as trastuzumab (Herceptin), Santinib (P53) and lapatinib.

Biography

Dr Bukhari completed his doctorate in Surgical Pathology with the theoretical and practical combination of Histopathology, Immunohistochemistry and PCR at the King Edward Medical University in 2007. After his doctorate he attended the special course of Breast Pathology in Harvard School of Public Health in 2009. He has started work with Prof Abbas Iqbal and Eyyad H A Kamel on Chemothearpeutic effect of Sanatinib.e in triple negative patients and HER 2 Positive cases.