

**Pathology Congress 2017: ALK overexpression in triple negative breast cancer using immunohistochemistry - Zonaira Rathore - Chughtai Lab, Pakistan.**

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Breast cancer is the most common female malignancy in the world. Studies have identified different molecular subtypes, including luminal a, luminal B, Her2 positive and triple negative breast cancer (TNBC) based on immunohistochemistry (IHC). They have a different prognosis and response to adjuvant therapy. Anaplastic kinase lymphoma (ALK) is a tyrosine kinase receptor known to be expressed in many tumors and can be targeted by anti-tyrosine kinase inhibitors. Studies have shown that a subset of breast carcinomas express ALK. The aim of our study is to determine the overexpression of the ALK protein using IHC on TNBC patients, by providing them with a targeted therapeutic option. A cross-sectional study was carried out, on 43 cases of TNBC of all the histological subtypes recovered in the archives of Chughtai Lab, Lahore, from January 1, 2016 to July 30, 2017, using a non-probability consecutive sampling technique. A mouse anti-human monoclonal antibody against DAKO's ALK was used. The membrane and / or nuclear staining of ALK in at least 1% of the tumor cells was considered to be positive. All data was analyzed via SPSS version 22.0. Our study showed 11 cases (25.6%) of overexpression of ALK by immunohistochemistry. Only one case (2.3%) showed a cytoplasmic granular positivity with nuclear staining while 10 cases showed only a nuclear staining scheme (23.2%). This study concludes that a significant number of cases show an overexpression of ALK by IHC, mainly nuclear. Further studies are needed, using in situ hybridization (ISH), to confirm the rearrangement of the ALK gene and validate the importance of nuclear staining of ALK as seen in our study. This subgroup of patients can benefit from anti-ALK treatment. However, more studies are needed to validate the results.

Breast cancer is cancer that advances since breast tissue. Signs of breast cancer can include a lump in the breast, a change in shape of the breast, padding of the skin and fluid from the nipple, a newly inverted nipple or a patch

of red or scaly skin. In those who have a distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin.

Risk aspects for emerging breast cancer include being a woman, obesity, lack of exercise, alcoholism and hormone replacement therapy during menopause, ionizing radiation, early age to the first menstruation, children at or near the end of life, old age, with a history of breast cancer and a family history of breast cancer. About 5-10% of cases are the result of a genetic predisposition inherited from a person's parents, including BRCA1 and BRCA2 among others. Breast cancer most often develops in cells from the lining of the milk ducts and from the lobules that supply milk to these ducts. Cancers that develop from the ducts are called ductal carcinomas, while those that develop from the lobules are called lobular carcinomas. There are further than 18 supplementary subtypes of breast cancer. Some, like ductal carcinoma in situ, develop from pre-invasive lesions. The diagnosis of breast cancer is confirmed by a biopsy of the tissue concerned. Once the diagnosis is made, other tests are done to determine if the cancer has spread beyond the breast and which treatments are most likely to be effective.

The balance of advantages and disadvantages of breast cancer screening is controversial. A 2013 Cochrane review revealed that it was unclear whether mammography screening did more harm than good, since a large proportion of women who tested positive were found not to have the disease. A 2009 review for the U.S. Preventive Services task force found evidence of benefit in those 40 to 70 years of age, and the organization recommends screening every two years for women 50 to 74 years of age. Tamoxifen or raloxifene can be used to prevent breast cancer in people at high risk of developing it. Surgical removal of both breasts is another preventive measure in some high-risk women. For those who have been diagnosed with cancer, a number of treatments can be used, including

surgery, radiation therapy, chemotherapy, hormone therapy, and targeted therapy. The types of surgery vary from breast conserving surgery to mastectomy. Breast reconstruction can take place at the time of surgery or at a later date. For those in whom the cancer has spread to other parts of the body, treatment is mainly aimed at improving quality of life and comfort.

The results of breast cancer vary depending on the type of cancer, the extent of the disease and the age of the person. Five-year survival rates in England and the United States are between 80 and 90%. In developing countries, five-year survival rates are lower. Worldwide, breast cancer is the primary type of cancer in women, accounting for 25% of all cases. In 2018, it resulted in 2 million new cases and 627,000 deaths. It is further common in established countries and is additional than 100 times more mutual in women than in men

#### Signs and symptoms

Breast cancer showing an inverted nipple, a lump and skin padding.

Breast cancer most often presents as a lump that feels different from the rest of the breast tissue. Over 80% of cases are discovered when a person detects such a lump with their fingertips. However, the first breast cancers are detected by mammography. Bumps found in the lymph nodes in the armpits can also indicate breast cancer.

Indications for breast cancer other than a lump may include different thickening of the other breast tissue, a breast becoming larger or lower, a changing or inverted position or shape of the nipple, skin folds or dimpling, rash on or around a nipple, discharge from nipple (s), constant pain in part of the breast or armpits and swelling under the armpits or around the collarbone. Pain (“mastodynia”) is an unreliable tool for determining the presence or absence of breast cancer, but may be indicative of other breast health problems.

Biography: Zonaira Rathore obtained her MBBS from King Edward Medical University. She is currently working as a histopathology consultant at Chughtai Lab, Pakistan.