REVIEW ARTICLE

The Expression of P63 Marker in Malignant and Benign Breast Tumors

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ABSTRACT

This is a retrospective study conducted on Sudanese patients from January 2021 to May 2021 at the radiation and isotope center in Khartoum. In this study we aimed to determine the expression of P63 marker in malignant and benign breast tumors. One hundred paraffin-embedded blocks previously diagnosed as breast tumors were collected. The study included 65 (65%) samples of malignant and 35 (35%) benign samples. All these samples were Immunohistochemically stained by using monoclonal antibodies (by indirect streptavidin-biotin technique) for p63. All immune-stained slides were scored as either positive or negative. Data collected from patient file and results were analyzed using social science statistic web SPSS computer program.

Keywords: Cancer, Breast tumor, Diagnostic markers, Immunohistochemical.

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INTRODUCTION

Breast cancer is the abnormal growth of the cells lining the breast lobules or ducts. Breast cancer typically produces no symptoms when the tumor is small, but the most common physical sign is a painless lump in the breast, change in breast shape, dimpling of the skin, fluid coming from the nipple, red scaly patch of skin (Giordano, *et al.* 2014).

In those with distance spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin (Saunders and Jassal, 2009).

A few factors have been implicated in the causation of breast cancer Some of the more important contributors includes, female, obesity, lack of exercise, alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, and family history (Giordano, *et al.* 2014).

Breast cancer can be diagnosed by mammography, ultrasound, magnetic resonance imaging, localization biopsy and excision, and needle sampling for palpable lesion (McPherson, *et al.* 2000).

Breast cancer treatment includes surgery, radiation therapy, chemotherapy, and targeted therapy (Giordano, *et al.* 2014).

Breast cancer is classified, according to World Health Organization (WHO) into benign (harmless) tumors and malignant (cancerous) tumors. The benign tumor includes fibrocystic changes, Fibroadenoma, Gynecomastia, fat necrosis and Papilloma.

The marker expressed in breast tumor includes ER, PR, HER, CA 27-29, and CA 15-3 (Kabel, 2017)

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P63 is a member of gene family. The gene is located on chromosome 3q27- 29. It encodes at least six different transcripts with transactivation (TAp63) or negative effects (DNp63) on the p53 reporter genes, resulting in tumors suppressor and oncogenic effects, respectively (Shih and Kurman, 2004).

DISCUSSION

The present study involves 100 cases of breast lesions for immunohistochemical detection of p63, 65 of them were malignant and the remaining 35 are benign.

Regarding the age groups, the study revealed that the majority of patients were aged above 40 years. Indicating that they are more susceptible to breast cancer due to endogenous hormone level. This result is compatible with (McPherson, *et al.* 2000), who reported that the incidence of

breast cancer increases with age. Also agree with (Kennedy, 2003), in their study 68.6% were above 50 years old.

In study population the most patient were diagnosed with invasive ductal carcinoma (44%) this result is compatible with (Al-joudi, *et al.*2007), who reported that invasive ductal carcinoma of breast was found to be the most prevalent breast cancer type), also agree with (Muhammad, *et al.* 2009), who reported that most common histologies include infiltrating ductal carcinoma counting for more than two third of cases.

In our study we differentiate between benign and malignant tumor which is compatible with (Sang, *et al.* 2014), who said that P63 is often used as a sensitive marker to identify myoepithelial cells particularly, it can be used to discriminate between invasive ductal carcinoma and sclerosingadenosis also agree with (Stefanou, *et al.*2004), which their finding suggests that P63 is a sensitive and specific Myoepithelial marker and may be included in immunohistochemical stain and also agree with (Alfredo, *et al.*2003), who reported that P63 is a specific myoepithelial cell marker in normal breast tissue and Fibroadenomas and stained the nucleus of a single continuous layer of cell.

CONCLUSION AND RECOMMENDATIONS

From this study we conclude that the age of breast cancer in our samples is commonly more than 40 years. Invasive ductal carcinoma is the most histological type of breast cancer in our samples. The P63 expression is associated with benign breast tumor more than malignant ones. We also recommend that further studies be done on the expression of p63 in breast tumors tissue with large sample sizes. p63 should be used to help in the differentiation between benign and malignant breast tumors.

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