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Association of some carbohydrates with estrogen expression in breast lesions among Sudanese females

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Breast cancer is a major health problem in under-developed countries including Sudan. Immunohistochemical typing is important for diagnosing and understanding the biology of such heterogeneous diseases. To the best of our knowledge, no study has investigated the association between estrogen receptor (ER) expression and carbohydrates in breast tissue. Mammographic high breast density, a major risk factor, is partially attributed to carbohydrates. This study aimed to determine the type of carbohydrates in malignant and benign breast lesions and detect if there is any association between ER expression and carbohydrates using histochemical and immunohistochemical methods. A total of 60 diagnosed samples of different breast lesions were re-examined for ER status by immunohistochemistry (IHC) and for carbohydrates

by histochemical staining methods, i.e. periodic acid Schiff (PAS) and alcian blue. Strong relationship was discovered between ER positivity and presence of acid mucin, but not with sulfated mucin. Furthermore, a strong relationship was found between ER positivity and PAS-positive materials, but not with glycogen. Since there was a significant correlation between ER and carbohydrates, these positive PAS materials might be PAS-positive acid mucin. These findings are useful in understanding the behavior of breast lesions. Also, these findings suggested an underlying molecular relationship and that ER expression might be predicted using histochemical demonstration of carbohydrates in female breast tissue, particularly when immunohistochemistry is out of reach.

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