

Overexpression of p53 in Nigerian breast cancers and its relationship with tumour grade and oestrogen /progesterone expressions

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Abstract

Background: Mutation of the tumour suppressor gene, p53, is implicated in most cancers. This gene has also been associated with high tumour grade in breast cancers. African women are known to generally have high grade tumours. This study sought to determine the expression of p53 protein as well as the relationship with oestrogen receptor (ER) and progesterone receptor (PR) proteins.

Methodology: Formalin-fixed, paraffin-embedded tissue samples of diagnosed invasive breast cancer were obtained from the Department of Anatomic and Molecular Pathology, Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos, Nigeria between 2002 and 2005. The clinical details of the patients were obtained from the histological request forms. Immunohistochemical studies were carried out in the Department of Histopathology, Royal Cornwall Hospital, Truro, United Kingdom with the automated Vision Biosystems Bond-Max Machines. The statistical analysis was done with SPSS version 12.

Results: Overexpression of p53 is seen in (86/116) 73.1% in Nigerian breast cancers and 89.6% of these cancers were of higher grade. The study also showed that (27/35) 77.1% of ER positive patients also showed p53 overexpression ($p=0.592$). We also found that (64/93) 68.8% of PR negative patients overexpressed p53 while (21/23) 91.3% of PR positive cases overexpressed p53 ($p=0.036$).

Conclusion: Most Nigerian breast cancer cases were of high grade and showed p53 overexpression. We found no significant relationship between p53 overexpression and ER status but, there was a significant relationship between PR status and p53 overexpression. Further studies are advocated to determine the prognostic value of p53 in Nigerian breast cancer cases.

Keywords: High grade, immunohistochemistry, low grade, tumour suppressor gene, well differentiated