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BREAST CANCER MOLECULAR SUBTYPE CLASSIFICATION ACCORDING TO IMMUNOHISTOCHEMISTRY MARKERS AND ITS ASSOCIATION WITH PATHOLOGICAL CHARACTERISTICS AMONG WOMEN ATTENDING TERTIARY HOSPITALS IN TANZANIA

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INTRODUCTION

Breast cancer immunohistochemistry is a biological characteristic which has a role to diagnose molecular subtype, prognosticate and guide treatment and categorised into 4 subtypes, Luminal A, Luminal B, Human Epidermal Growth Factor Receptor 2 (HER2) enriched and Triple Negative Breast Cancer (TNBC).

MATERIALS & METHODS

A retrospective cross-sectional study was carried out at two tertiary referral hospitals recruited from the cancer registries from 2015-2022. Prevalence of each subtype was determined and association to demographic and pathological characteristics were evaluated. Predictors of molecular subtypes was then determined using logistic regression.

RESULTS

Total number of cases were 1214, median age was 50 (IQR: 41-61), median tumour size was 5cm (IQR: 4-7) with lymph node positivity in 73.7%. Immunohistochemistry studies showed estrogen, progesterone and HER2

receptor positivity in 54.4%, 34.4% and 27.8% respectively. Molecular subtype prevalence for Luminal A was 21.17% (95% CI: 18.87-23.47), for Luminal B 35.75% (95% CI: 33.05-38.45), for HER2 enriched 11.86% (95% CI: 10.04-13.68) and for TNBC 31.22% (95% CI: 28.61-33.83). Significant association noted between molecular subtype with age, tumour size, tumour grade and lymph node involvement. Predictors of Luminal tumours were larger tumour size (aOR 1.217, 95% CI: 1.149-1.291), no lymph node involvement (aOR 0.429, 95% CI: 0.313-0.589) while an advanced tumour grade reduced likelihood (aOR 0.041, 95% CI: 0.011-0.019).

DISCUSSION

Hormonal positivity was seen in more than 50% of cases, similar to findings in other Eastern and Northern African countries, more than Western African but less than European countries. Luminal tumours have more favourable pathological characteristics and was found to have a better tumour grade and less likelihood of lymph node involvement as compared to HER2 enriched or TNBC.

CONCLUSION

In Tanzania, Luminal B was most predominant subtype presenting at an earlier

age and associated with more favourable pathological characteristics.