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A comparison of oestrogen receptor and progesterone receptor status of breast cancer tissue processed in-house and in external laboratories: an internal audit

F.N. Nawas, N. Meedeniya, A. Ruwan, A.A.H. Priyani

Lanka Hospital Diagnostics Laboratory, Narahenpita, Sri Lanka.

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Introduction: Optimum fixation/ processing of tissue is required to avoid false negative results (FNR) in breast cancer (BC) biomarkers.

Objectives: This audit compares oestrogen receptor (ER) and progesterone receptor (PR) status of BC tissue processed in-house, under controlled conditions, and in external laboratories (ELs).

Method: BC reported for ER and PR at Lanka Hospital Diagnostics from January to December 2020 were included. The test result, place of processing of tissue, and for cases processed in-house, cold ischemia time, type of fixative and duration of fixation were obtained from the worksheets. Patients of 50-years and above were considered postmenopausal.

Results: Ninety-nine cases were included; 57 were processed in-house, 42 were received as wax tissue blocks from ELs. In all in-house cases, the fixative was 10% NBF, the cold ischemia time was <1 hour, and the duration in formalin ranged from 24-96 hours. Fixation details were not known for those processed in ELs. ER-negative rates (ERNR) were 30% (17/57) and 57% (24/42) for in-house cases and ELs, respectively. For postmenopausal women, those were 23% (10/43) and 54% (13/24), respectively. PR negative rates (PRNR) were 38% (21/55) and 63% (26/41), respectively.

Discussion and conclusion: BC tissue processed in-house showed ERNR and PRNR close to CAP benchmarks (ERNR - overall <30%, ERNR – postmenopausal <20%, PRNR – overall <45%). High ER and PR negative cases received from ELs, exceeding CAP recommendations, could be FNRs as the fixation details are not known. Identification of centres with high negative rates, giving instructions for the pre-analytical phase and monitoring of fixation details when receiving wax tissue blocks from ELs are recommended to avoid FNR in future.

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Corresponding author: Professor AAH Priyani
Lanka Hospital Diagnostics Laboratory,
Narahenpita, Sri Lanka
priyaniaah@gmail.com