

## **ABSTRACT**

### **Introduction:**

Breast carcinoma is the most common cancer among women in the urban Indian population. Routinely, immunohistochemistry (IHC) is done to determine the hormone receptor status of the tumor. In this present study Immunocytochemistry (ICC) on fine-needle aspiration cytology (FNAC) is done to determine the same hormone receptor status of the tumor.

### **Objective:**

1. To grade breast carcinoma and to determine Estrogen (ER) and progesterone(PR) expression in fine needle aspiration cytology (FNAC) samples.
2. To compare the results with histological grading and immunohistochemistry for ER and PR on surgical specimens.

### **Materials and Methods:**

A 1 year prospective study conducted in the Institute of Pathology, Madras medical college to evaluate the diagnostic reliability of performing estrogen receptor (ER) and progesterone receptor (PR) status on FNAC by ICC and to compare the results with IHC. In Madras medical college 50 breast carcinoma

patients' samples both cytology and histology were collected. IHC and ICC were done by peroxidase antiperoxidase technique. Validations of the receptor status were analyzed using sensitivity, specificity, positive and negative predictive values (PPV and NPV), and kappa statistics for agreements between ICC and IHC.

### **Results:**

ICC was positive for ER14 cases and PR positive in 7 cases and cases, respectively. In the present study ER sensitivity is 73.68%, specificity of 100%, and PPV and NPV being 100% and 86.11%. diagnostic accuracy 90%, false positivity rate 0%, false negativity rate 26.32% kappa value 0.776% and p value <0.776 which is statistically significant.

For PR, sensitivity is 63.64%, specificity of 100%, and PPV and NPV being 100% and 90.70%. diagnostic accuracy 92%, false positivity rate 0%, false negativity rate 36.36% kappa value 0.732% and p value <0.001 which is statistically significant.

### **Conclusion:**

Hormone receptors can be studied using cell blocks/cytology slides and the patients can be treated preoperatively with hormone therapy on the basis of FNAC/ICC and the surgical procedure can be avoided for the diagnosis and hormone receptor study in a sizable number of cases.