

## **Role of nuclear medicine in breast cancer**

### **Positron Emission Tomography/ computed tomography:**

Especially in the United states, the studies of oncologic accounted for approximately 94% of the estimated 1.5 million positron emission tomography/ computed tomography procedures performed in 2011. F-18 fluoro-2-deoxyglucose(F-18FDG), which is known as tumour-avid glucose analog has gained widespread acceptance as a marker of cellular metabolism providing insight into cancer physiology at the molecular level. The ability of Positron emission tomography/ computed tomography to accurately stage WB metastatic disease as well as quantify and evaluate the responses from therapeutic conditions, it has significantly embedded and tailored the care breast cancer patients receive. High sensitivity and specificity best appropriate positron emission tomography/ computed tomography for detecting distant metastases as the system may not adequately resolve small primary breast lesions or axillary nodal regions. At present under investigation to address this limitation, dedicated positron emission mammography devices were actually designed to improve the detection of small primary lesions by maximising system spatial resolution. PET / CT is compared and in some cases may surpass whole body body scan (WBBS) in detecting breast cancer bone metastases, showing similar sensitivity but greater specificity as a result of improved metabolic manifestations and morphologic osseous lesions. The F-18 FDG may also provide preliminary and purposeful prediction and response testing in many treatment settings. Using a fixed protocol, serial standard uptake value (SUV) measurements are obtained directly from tumor metabolic avidity and thus provide a limited representation of cancer science over time. There is also a positive correlation between the severity of the infection and the SUVmax of the upper extremity, which includes the values obtained for osseous lesions. Novel positron-emitting radiopharmaceuticals designed to improve specificity by targeting estrogen, progesterone, estrogen growth factor and somatostatin receptors detected in breast tumors were also tested by PET / CT. Plant identification, concomitant treatment investigations, disease load level and disease monitoring by serial imaging are facilitated by receptor-mediated molecular imaging.