

## 2071

### Correlation Between 18F-FDG Positron Emission Tomography FDG Uptake Levels and Histopathological and Immunohistochemical Factors in Breast Cancer Patients

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**Purpose/Objective(s):** Breast cancer is the most common cancer worldwide and one of the leading causes of cancer-related death among women. The 18F-FDG Positron Emission Tomography/Computed Tomography (PET/CT) is a non-invasive imaging technique and is widely used within the diagnostic algorithms of oncological diseases. PET/CT has shown to be useful at different stages of breast cancer; diagnosis, staging or re-staging, treatment response assessment, and recurrence. The aim of this study was to determine the correlation between pretreatment staging PET/CT maximum standardized uptake value (SUVmax) levels and histopathological and immunohistochemical prognostic factors in breast cancer patients.

**Materials/Methods:** One hundred and thirty nine (139) female breast cancer patients who were treated between 2008 and 2015 at our department were included in the study. SUVmax levels were compared with histopathological and immunohistochemical findings. All statistical analyses were performed using predictive analytics software for Windows.

**Results:** Median age was 48 years (range 29-79 years). Mean tumor volume was 33.4 mm (range 0.7-120 mm). The histopathology was invasive ductal carcinoma in 80.6% of the patients. High SUVmax levels were significantly correlated with younger age (<45 years), invasive ductal carcinoma in comparison with invasive lobular carcinoma and others, tumor size (>2 cm), negative hormone receptor status, triple negativity, and higher scores of histological and nuclear grade in univariate analyses ( $P < 0.05$ ; Table 1). In HER2 positive patients, the mean level of SUVmax levels were higher but not statistically significant. There was no correlation between SUVmax levels and lymph node metastases or pathological stage. In multivariate analysis, tumor size was the only independent prognostic factor correlated with SUVmax levels.

**Conclusion:** SUVmax levels are significantly correlated with the known histopathological and immunohistochemical prognostic factors. Preoperative prediction of prognosis is important to decide the treatment approach. PET/CT could be useful in pretreatment evaluation of breast cancer patients to predict biological characteristics of the tumor and prognosis.

Abstract 2071; Table 1.

Variable	Comparison	n	SUVmax (Mean $\pm$ SD)	P value
Age (years)	<45	51	6,9 $\pm$ 0,6	0,04
	$\geq$ 45	88	5,8 $\pm$ 0,4	
Histology	Ductal carcinoma	112	6,6 $\pm$ 0,4	0,04
	Lobular carcinoma and others	27	4,7 $\pm$ 0,8	
Tumor size (cm)	$\leq$ 2	28	4,5 $\pm$ 0,8	0,02
	>2	111	6,7 $\pm$ 0,4	
Histological grade	1	7	3,3 $\pm$ 1,5	0,001
	2	54	5,4 $\pm$ 0,6	
	3	78	7,0 $\pm$ 0,5	
Nuclear grade	1	1 5,7		0,004
	2	39	5,2 $\pm$ 0,7	
	3	99	6,6 $\pm$ 0,4	
Estrogen receptor	Negative	33	8,7 $\pm$ 0,7	0,000
	Positive	106	5,4 $\pm$ 0,4	
Progesterone receptor	Negative	42	8,0 $\pm$ 0,6	0,000
	Positive	97	5,4 $\pm$ 0,4	
Hormone receptors	Negative	30	8,9 $\pm$ 0,7	0,000
	Positive	109	5,5 $\pm$ 0,4	
Triple negative	No	128	6,1 $\pm$ 0,4	0,05
	Yes	11	7,2 $\pm$ 1,3	

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## 2072

### Trends in Axillary Management of Breast Cancer in Patients With Positive Sentinel Lymph Node

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**Purpose/Objective(s):** Axillary nodal dissection (ALND) in breast cancer patients is known to cause significant morbidity including lymphedema, limited motion, and paresthesias. Recent studies have challenged the notion that a positive sentinel lymph node biopsy (SLNB) requires subsequent complete axillary dissection. This study aims to identify the trends in nodal management at an academic institution after publication of landmark papers.

**Materials/Methods:** We performed a retrospective review of node-positive breast cancer patients who received breast or chest wall radiation at our institution between 2005-2015. The proportion of patients who had complete ALND versus SLNB alone was compared across time points, as were treatment characteristics and pathologic stage in each group.

**Results:** In this cohort of 101 patients, 30.7% had SLNB and 69.3% had ALND. The median number of nodes removed in the SLNB group was 3 and in the ALND group 13. When broken down by year of surgery, the percent of patients undergoing SLNB was as follows: 2005-2008: 22%; 2009-2011: 25.5%; 2012-2015: 48%. The rate of ALND decreased over time in both patients who received mastectomy as well as lumpectomy. Median number of positive lymph nodes with ALND was 2 and with SLNB was 1, across all time points. The rate of regional nodal irradiation in those patients receiving ALND increased as follows: 2005-2008: 62%; 2009-2011: 86%; 2012-2015: 93%. Despite the increase in SLNB alone, only 1 local recurrence, 0 regional failures, and 9 distant failures were documented in the entire cohort.

**Conclusion:** The rate of ALND in node-positive patients has decreased in the past decade, corresponding with the publication of landmark studies advocating for more conservative nodal surgeries. This data suggests that higher risk patients are being selected for complete axillary clearance and regional nodal RT. This shift was associated with persistently low local and regional failure rates, and signals a decrease in surgical morbidity for these patients without a compromise in oncologic outcome.

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## 2073

### Exposure of the Lungs in Breast Cancer Radiation Therapy: A Systematic Review of Lung Doses Published Between 2010 and 2015

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**Purpose/Objective(s):** Radiation therapy for breast cancer improves mortality but may cause lung cancer. We report a systematic review of lung doses from breast cancer dosimetry studies.

**Materials/Methods:** Eligible studies were published during 2010-2015 and reported lung dose from breast cancer radiation therapy. Analyses considered the arithmetic mean of the doses from the CT plans used in each regimen. They focused on the mean dose and V20<sub>Gy</sub> (volume of lung