PREDICTORS OF LYMPH NODES METASTASIS IN 209 PATIENTS WITH EARLY INVASIVE BREAST CANCER: ONE YEAR EXPERIENCE OF A SINGLE CANCER CENTER

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BACKGROUND AND AIMS: axillary lymph node metastasis (ALNM) remains the most important predictive factor for recurrence risk and survival in patients with invasive breast carcinoma.

METHODS: It was a retrospective study of 209 patients with T0-T1-T2 breast cancer who underwent resection of the primary tumor and axillary staging by sentinel lymph node biopsy (SLNB) and/or axillary lymph node dissection (ALND) over 2012 at our institute. The χ^2 test and Fisher's exact probability tests were used for categorical variables, and t-test for continuous variables. Predictors of ALNM were identified by univariate and multivariate logistic regression analysis using SPSS statistical software package (version 20.0).

RESULTS:

- The mean age of our patients was 51.39 years (range 27-85 years).
- The distribution of patients according clinical T stage was as follow: 17 patients (8.1%) were staged T0, 62 staged T1 (29.7) and 130 patients (62.2%) were staged T2. Multifocality was reported in 38 patients (18.2%).
- No clinical lymph nodes metastasis was found in 44.5% of patients. The distribution of patients according N stage was as follow: cN1: 113 patients (54.1%), N2: one patient (0.5%) and N3c: 2 patients (1%).
- A total of 38 patients (18.2%) received neoadjuvant chemotherapy.
- Radical surgery was performed in 116 patients (55.5%) and conservative surgery in 93 (44.5%).
- Adjuvant chemoherapy was administrated in 126 patients (60.3%) and adjuvant radiation therapy in 187 patients (89.5%).
- Histologic lymph node metastasis was found in 102 patients (48.8%).
- Positive Estrogen receptors (ER) were found in 172 (82.3%) and progesteron receptors in 150 patients (71.8%).
- Her 2 neu overexpression was found in 36 patients (17.2%).

On univariate analyses, the factors associated with ALNM were tumor clinical size, multifocality, lymphovascular invasion (LVSI), HER2 overexpression and Ki67 value $\geq 14\%$ as well as molecular subtype. The presence of the estrogen receptors (ER), and progesterone receptors (PR) have no influence on the risk of ALNM. However, the rate of positive ER was significantly lower in patients with ALNM. Table1

Table1: Univariate analysis of predictive factors of axillary lymph nodes metastasis

Variables		Effectif	N-	N+	p
Age (years)	≤ 35	11	4 (36.4%)	7 (63.6%)	0.488
	36-69	183	94 (51.4%)	89 (48.6%)	
	≥70	13	8 (61.5%)	5 (38.5%)	
T stage	T0	17	13 (76.5%)	4 (23.5%)	0.02
	T1	62	36 (58.1)	26 (41.9%)	
	T2	130	58 (44.6%)	72 (55.4%)	
Grade SBR	1	28	15 (53.6%)	13 (46.4%)	0.347
	2	127	69 (54.3%)	58 (45.7%)	
	3	54	23 (42.6%)	31 (57.4%)	
LVSI	No	174	99 (56.9%)	75 (43.1%)	<0.0001
	Yes	35	8 (22.9%)	27 (77.1%)	
Multifocality	No	171	97 (56.7%)	74 (43.3%)	0.001
	yes	38	10 (26.3%)	28 (73.7%)	
Ki 67 status	<14%	99	58 (58.6%)	41 (45.1%)	0.043
	≥14%	110	49(44.5%)	24 (66.7%)	
RH status	Negatif	35	18 (51.4%)	17 (48.6%)	0.976
	Positif	174	89 (51.1%)	85 (48.9%)	
PR rate (%)		209	73.3±28.410	66.28±31.872	0.150
ER rate (%)		209	84.19±19.865	72.87±5.76	0.002
Her 2 neu overexpression	No	173	95 (54.9%)	78 (45.1%)	0.018
	Yes	36	12 (33.3%)	24 (66.7%)	
Molecular classification	Luminal A	85	51 (60%)	34 (40%)	0.049
	Luminal B	90	39 (43.3%)	51 (56.7%)	
	Her 2	15	5 (33.3%)	10 (66.7%)	
	Triple Neg	19	12 (63.2%)	7 (36.8%)	

On multivariate logistic regression model, the presence of LVSI, the tumor clinical size and the rate of ER positivity remained as independent predictors of ALNM. (Table 2)

Table 2: Multivariate analysis of predictive factors of ALNM

Variable	p	OR	95% CI
LVSI	0.002	4.450	1.756-11.278
Tumor size	0.002	1.261	1.088-1.463
Rate of ER	0.002	0.977	0.962-0.991
Ki 67 status	0.081	1.825	0.929-3.589

Conclusion: Our results suggest that LVI, tumor size and the rate of positive ER are predictive factors for ALNM in EBC.