

Performance of contrast-enhanced cone-beam breast CT to predict nipple-areolar complex involvement in early-stage breast cancer

ELECTRONIC SUPPLEMENTARY MATERIAL

Clinicopathologic factors and radiologic features in CBBCT images in patients with or without NAC involvement based on pathological diagnosis

		Pathological NAC involvement		P value
		non-involvement (N=91)	involvement (N=91)	
Clinicopathologic factors				
Age				0.07
	≤50	56(61.5%)	44(48.4%)	
	> 50	35(38.5%)	47(51.6%)	
Menopausal status				0.07
	Postmenopausal	36(39.6%)	48(52.7%)	
	Premenopausal	55(60.4%)	43(47.3%)	
Histologic subtype				0.82
	DCIS	10(11.0%)	11(12.1%)	
	IC	81(89.0%)	80(87.9%)	
Nuclear grade				0.08
	1	0(0.0%)	1(1.1%)	
	2	52(57.1%)	39(42.9%)	
	3	39(42.9%)	51(56.0%)	
Stage				0.06
	0	10(11.0%)	11(12.1%)	
	1	30(33.0%)	28(30.8%)	
	2	35(38.5%)	22(24.2%)	
	3	16(17.6%)	30(33.0%)	
Postoperative T stage				0.99
	Tis	10(11.0%)	11(12.1%)	
	1	38(41.8%)	39(42.9%)	
	2	37(40.7%)	36(39.6%)	
	3	3(3.3%)	2(2.2%)	
	4	3(3.3%)	3(3.3%)	
Postoperative N stage				0.02
	0	56(61.5%)	44(48.4%)	
	1	24(26.4%)	18(19.8%)	
	2	5(5.5%)	14(15.4%)	

ER	3	6(6.6%)	15(16.5%)	0.40
	Negative	22(24.2%)	27(29.7%)	
	Positive	69(75.8%)	64(70.3%)	
PR	Negative	30(33.0%)	34(37.4%)	0.54
	Positive	61(67.0%)	57(62.6%)	
HER-2 status	Not amplified	59(64.8%)	41(45.1%)	0.007
	Amplified	32(35.2%)	50(54.9%)	
Ki-67 expression	<15%	19(20.9%)	15(16.5%)	0.45
	≥15%	72(79.1%)	76(83.5%)	
Molecular subtype	TNBC	14(15.4%)	6(6.6%)	0.06
	Luminal A	16(17.6%)	10(11.0%)	
	Luminal B (HER-2 negative)	29(31.9%)	25(27.5%)	
	Luminal B (HER-2 positive)	19(20.9%)	27((29.7%)	
	HER-2 overexpression	13(14.3%)	23(25.3%)	
Lymphovascular invasion	Negative	60(65.9%)	59(64.8%)	0.88
	Positive	31(34.1%)	32(35.2%)	
Radiologic features				
Asymmetric NAC enhancement*				<0.001
	No	67(77.9%)	20(22.5%)	
	Yes	19(22.1%)	69(77.5%)	
Nipple retraction	No	79(86.8%)	52(57.1%)	<0.001
	Yes	12(13.2%)	39(42.9%)	
Periareolar skin thickening	No	76(83.5%)	37(40.7%)	<0.001
	Yes	15(16.5%)	54(59.3%)	
Suspicious calcification within 2cm	No	71(78.0%)	46(50.5%)	<0.001
	Yes	20(22.0%)	45(49.5%)	
Multicentric/multifocal lesion				<0.001
	No	45(49.5%)	12(13.2%)	

Tumor location	Yes	46(50.5%)	79(86.8%)	0.23
	Central area only	4(4.4%)	8(8.8%)	
	Involving peripheral area	87(95.6%)	83(91.2%)	
Overall size				< 0.001
	≤2cm	25(27.5%)	4(4.4%)	
	>2cm	66(72.5%)	87(95.6%)	
Largest diameter				0.11
	≤2cm	32(35.2%)	22(24.2%)	
	>2cm	59(64.8%)	69(75.8%)	
TND				< 0.001
	>1cm	71(78.0%)	30(33.0%)	
	≤1cm	20(22.0%)	61(67.0%)	
Morphology of the lesion				< 0.001
	Only mass	63(69.2%)	30(33.0%)	
	Including NME	28(30.8%)	61(67.0%)	
TNE within 2cm of the NAC				< 0.001
	No	63(69.2%)	9(9.9%)	
	TNE extending to the NAC	17(18.7%)	67(73.6%)	
	TNE non-extending to the NAC but within 2cm	11(12.1%)	15(16.5%)	

HER-2 amplification was defined as 3 + using immunohistochemistry or gene amplification by in situ hybridization.

NAC, nipple-areolar complex; DCIS, ductal carcinoma in situ; IC, invasive carcinoma; ER, estrogen receptor; PR progesterone receptor; HER-2, human epidermal growth factor receptor-2; TNBC, triple negative breast cancer; TND tumor-nipple distance; NME, non-mass enhancement; TNE, tumor-nipple enhancement.

*Missing values.