

Table 1. Clinical-Pathologic Characteristics of the study sample

		Axillary nodal status			P
		N0 (n=200)	N+(1-2) (n=119)	N+(≥3) (n=78)	
age					0.035
<40y	91	35 (17.5)	34 (28.6)	22(28.2)	
≥40y	306	165 (82.5)	85 (71.4)	56(71.8)	
Histologic type					0.372
IDC	290	140(70)	95(79.8)	55(70.5)	
IDC-DCIS	75	42(21)	16(13.4)	17(21.8)	
Others [#]	32	18(9)	8(6.7)	6(7.7)	
Nuclear Grade					0.002
Low to intermediate	264	140(73.7)	86(74.8)	38(52.8)	
High	103	50(26.3)	29(25.2)	34(47.2)	
Unknown	20	10	4	6	
Vascular invasion					<0.001
No	128	74(73.3)	36(45.0)	18(32.1)	
Yes	109	27(26.7)	44(55.0)	38(67.9)	
Missing	160	99	39	22	
ER					0.060
Negative	93	55(27.5)	27 (22.9)	11 (14.1)	
Positive	303	145(72.5)	91 (77.1)	67 (85.9)	
Missing	1	0	1	0	
PR					0.029
Negative	109	66 (33.0)	29 (24.6)	14 (17.9)	
Positive	287	134 (67.0)	89 (75.4)	64 (82.1)	
Missing	1	0	1	0	
HER2					<0.001
-	169	88 (44.0)	49 (41.2)	32 (41.0)	
1+	123	33 (16.5)	51 (42.9)	39 (50.0)	
2+	54	40 (20.0)	13 (10.9)	1 (1.3)	
3+	51	39 (19.5)	6 (5.0)	6 (7.7)	
Ki67					0.089
Low(<14%)	122	67 (33.5)	39(33.1)	16(20.5)	
High	274	133 (66.5)	79(66.9)	62(79.5)	
Missing	1	0	1	0	
Molecular subtype [*]					0.002
Luminal	313	149(76.4)	97(82.9)	67 (85.9)	
HER2-positive	17	17(8.7)	0	0	
Basal-like	60	29(14.9)	20(17.1)	11 (14.1)	
Uncertain	7	5	1	0	
clinical T stage					0.012
T1	186	103 (51.5)	58(48.7)	25(32.1)	
T2	211	97 (48.5)	61(51.3)	53(67.9)	
Tumor Size(mm)*	23.2(16,28)	22.3(15,27)	22.5(16.5,26)	26.9(20,32)	<0.001

Uni- and multifocal tumors					0.016
Unifocal	296	152(86.4)	91(85.8)	53(79.1)	
Multifocal	32	17(9.7)	11(10.4)	4(6.0)	
Multicentric	21	7(4.0)	4(3.8)	10(14.9)	
Missing	48	24	13	11	
Mass and non-mass enhancement					0.749
Mass	346	173(87.5)	106(89.1)	67(85.9)	
Non-mass	51	27(12.5)	13(10.9)	11(14.1)	
Unilateral diseased breast					0.176
Left	182	85(42.5)	63(52.9)	34(43.6)	
Right	215	115(57.5)	56(47.1)	44(56.4)	
Tumor location					0.003
UIQ	57	39(19.5)	11(9.2)	7(9.0)	
LIQ	24	16(8.0)	3(2.5)	5(6.4)	
UOQ	134	58(29.0)	52(43.7)	24(30.8)	
LOQ	35	15(7.5)	8(6.7)	12(15.4)	
U	53	26(13.0)	19(16.0)	8(10.3)	
L	15	11(5.5)	3(2.5)	1(1.3)	
I	10	5(2.5)	5(4.2)	0	
O	33	15(7.5)	10(8.4)	8(10.3)	
other [†]	36	15(7.5)	8(6.7)	13(16.7)	
FGT					0.791
Fatty	0	0	0	0	
Scattered	61	34(17.0)	16(13.4)	11(14.1)	
Heterogeneously dense	296	144(72.0)	91(76.5)	61(78.2)	
Dense amounts of FGT	40	22(11.0)	12(10.1)	6(7.7)	
BPE					0.209
Minimal	3	0	1(0.8)	2(2.6)	
Mild	264	136(68.0)	74(62.2)	54(69.2)	
Moderate	97	46(23.0)	32(26.9)	19(24.4)	
Marked	33	18(9.0)	12(10.1)	3(3.8)	
Mass shape					0.337
Oval	83	49(28.3)	23(21.7)	11(16.4)	
Round	44	22(12.7)	14(13.2)	8(11.9)	
Irregular	219	102(59.0)	69(65.1)	48(71.6)	
Mass margin					0.010
Circumscribed	12	8(4.6)	2(1.9)	2(3.0)	
Irregular	163	95(54.9)	46(43.4)	22(32.8)	
Spiculated	171	70(40.5)	58(54.7)	43(64.2)	
Mass internal enhancement					0.318
characteristics					
Homogeneous	30	18(10.4)	9(8.5)	3 (4.5)	
Heterogeneous	252	118(68.2)	83 (78.3)	51 (76.1)	
Rim enhancement	64	37(21.4)	14 (13.2)	13 (19.4)	

Distribution of NME					0.283
Focal	5	4 (14.8)	0	1 (9.1)	
Linear	1	0	0	1 (9.1)	
Segmental	30	16 (59.3)	9 (69.2)	5 (45.5)	
Regional	10	5 (18.5)	1 (7.7)	4 (36.4)	
Multiple regions	3	1 (3.7)	2 (15.4)	0	
Diffuse	2	1 (3.7)	1 (7.7)	0	
Internal enhancement patterns of NME					0.373
Homogeneous	3	1 (3.7)	0	2 (18.2)	
Heterogeneous	30	14 (51.9)	8 (61.5)	8 (72.7)	
Clumped	11	7 (25.9)	3 (23.1)	1 (9.1)	
Clustered ring	7	5 (18.5)	2 (15.4)	0	
LN LD(mm)*	12.13 (11.61,12.71)	11.40 (10.78,12.07)	11.84 (10.97,12.80)	14.42(13.05,15.88)	<0.001
LN SD(mm)*	7.57 (7.22,7.89)	6.69 (6.35,7.03)	7.71(7.06,8.41)	9.58(8.70,10.41)	<0.001
LN LD/SD	1.66(1.61,1.71)	1.74(1.66,1.83)	1.60(1.51,1.70)	1.53(1.46,1.61)	0.004
LN margin					<0.001
Smooth	322	184(96.3)	94(81.0)	44(58.7)	
Irregular	60	7(3.7)	22(19.0)	31(41.3)	
Missing	15	9	3	3	
LN Hilum					<0.001
Present	222	140 (72.9)	59(50.4)	23(30.3)	
Absent	163	52 (27.1)	58(49.6)	53(69.7)	
Missing	12	8	2	2	
LN Symmetry					<0.001
Yes	256	166(86.5)	70(60.3)	20(26.7)	
No	127	26(13.5)	46(39.7)	55(73.3)	
Missing	14	8	3	3	
Preoperative axillary US					<0.001
Negative	247	171(85.5)	51(63.7)	25(41.7)	
Positive	93	29(14.5)	29(36.3)	35(58.3)	
Missing	57	0	39	18	
TIC type					0.108
I	17	6 (3.3)	8 (7.7)	3 (4.3)	
II	175	83 (45.6)	50 (48.1)	42 (60.0)	
III	160	93 (51.1)	42 (44.2)	25 (35.7)	
Missing	45	9	19	8	

Note. Except where indicated, data are numbers of patients, with percentages in parentheses. N0, lymph node-negative; N+, any lymph node metastasis; N+(1-2), lymph node metastasis involving one or two nodes; N+(≥ 3), lymph node metastasis involving at least three nodes; IDC, invasive ductal carcinoma; IDC-DCIS, invasive ductal carcinoma with ductal carcinoma in situ; ER, estrogen receptor; PR, progesterone receptor; HER2, human epidermal growth factor receptor 2; Ki67, antigen identified by monoclonal antibody Ki-67; LN, lymph node; TIC, time intensity curve; NME, non-mass enhancement; FGT, fibroglandular tissue; UIQ, upper inner quadrant; UOQ, upper outer quadrant; LOQ, lower outer quadrant; LIQ, lower inner quadrant; U, upper quadrant; L, lower quadrant; I, inner quadrant; O, outer quadrant; LD, long diameter; SD, short diameter.

* Data are medians, with interquartile range in parentheses.

Other carcinomas included invasive lobular carcinoma (n=7), ductal carcinoma in situ with invasion/microinvasion (n=14), invasive ductal carcinoma with neuroendocrine feature (n=2); small cell carcinoma with invasive ductal carcinoma (n=1); invasive ductal carcinoma with mucinous carcinoma (n=4); invasive micropapillary carcinomas (n=2); invasive carcinoma with apocrine gland differentiation(n=1); squamous carcinoma (n=1).

† Other regions included central, subareolar area.

& St.Gallen surrogate molecular subtype

Bold values denote $P < 0.05$.