Stadiazione dell'ascella in pazienti trattate con chemioterapia neoadiuvante

Riccardo Ponzone Ginecologia Oncologia Istituto di Candiolo, FPO - IRCCS



Schematic of progressive de-escalation of axillary surgery



Overall survival for node-negative and node-positive patients in the NSABP B-04 study according to treatment



No significant differences were observed among clinically node-negative patients undergoing radical mastectomy, total mastectomy and radiation or total mastectomy alone (around 40% pathologically node positive in each arm), nor between node-positive patients treated with either radical mastectomy or mastectomy and irradiation

Sentinel-lymph-node resection compared with conventional axillary-lymph-node dissection in clinically node-negative patients with breast cancer: overall survival findings from the NSABP B-32 randomised phase 3 trial



SLNs were successfully removed in 97.2% with a false-negative rate of 9.8%

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Overall survival, disease-free survival, and regional control were statistically **equivalent** between groups.

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Axillary Dissection vs No Axillary Dissection in Women With Invasive Breast Cancer and Sentinel Node Metastasis

A Randomized Clinical Trial



In the ALND group, 27.3% patients had additional metastasis in lymph nodes removed by ALND

In the, at a median follow-up of 6.3 years, **neither 5-year regional recurrence**, **nor 5-year overall survival differed significantly** between the two arms

Current approach of the axilla in patients with earlystage breast cancer

SLN biopsy BEFORE neoadjuvant chemotherapy

PROS

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- provides pathological information about axillary nodal status without the confounding effects of NAC
- can help select pNO patients *ab initio* for whom adjuvant locoregional radiotherapy may be spared

CONS

- · Clinical utility limited, since it generally does not affect the decision regarding the choice of systemic therapy
- May preclude information that may help select locoregional racherepy al, Lancet 2017,
 - door not provide quantification of initial disease burden

Current approach of the axilla in patients with earlystage breast cancer

SLN biopsy AFTER neoadjuvant chemotherapy

PROS

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- Can potentially avoid the need for ALND in 30–40% of patients who experience cPR after NAC
- Can show pathological axillary downstaging by NAC, an important prognostic factor and surrogate marker for improved overall survival (particularly in patients with triple-negative or HER2- positive breast cancer)

CONS

success rates in terms of identification rate and false negative rate slightly less favourable by comparison with upfront SLN biopsy

Mamounas et al, Lancet 2017,

Sentinel-lymph-node biopsy in patients with breast cancer before and after neoadjuvant chemotherapy (SENTINA): a prospective, multicentre cohort



- SENTINA is a four-arm, prospective, multicentre cohort study undertaken at 103 institutions in Germany and Austria.
- 1737 women with breast cancer who were scheduled for neoadjuvant chemotherapy were enrolled into the study.

Sentinel-lymph-node biopsy in patients with breast cancer before and after neoadjuvant chemotherapy (SENTINA): a prospective, multicentre cohort

	Arms A and B	Arm B	Arm C	р
Hot spot on lymphoscintigraphy	1014/1022 (99%)	236/360 (66%)	476/592 (80%)	<0.0001
Overall surgical detection rate (n/N; 95% CI)	99·1% (1013/1022; 98·3-99·6)	60-8% (219/360; 55-6-65-9)	80·1% (474/592; 76·6-83·2)	<0.0001
Overall surgical detection rate with radiocolloid alone	98-8% (573/580; 97-5-99-5)	52·9% (126/238; 46·4–59·4)	77·4% (301/389; 72·9–81·4)	
Overall surgical detection rate with radiocolloid and blue dye	99·5% (399/401; 98·2–99·9)	76·2% (80/105; 66·9–84·0)	87·8% (144/164; 81·8–92·4)	
Sentinel lymph nodes removed				
0	9/1022 (1%)	141/360 (39%)	118/592 (20%)	
1	284/1022 (28%)	96/360 (27%)	142/592 (24%)	
2	294/1022 (29%)	56/360 (16%)	131/592 (22%)	
3	186/1022 (18%)	22/360 (6%)	81/592 (14%)	
4	114/1022 (11%)	20/360 (6%)	59/592 (10%)	
>4	135/1022 (13%)	25/360 (7%)	61/592 (10%)	
At least one sentinel node removed				
All patients	Mean 2·7, median 2·0	Mean 2·4, median 2·0	Mean 2·7, median 2·0	<0.0001
Radiocolloid alone	Mean 2·6, median 2·0	Mean 2·3, median 2·0	Mean 2·6, median 2·0	0.012
Radiocolloid and blue dye	Mean 2·8, median 2·0	Mean 2·6, median 2·0	Mean 2·9, median 3·0	0.059
Data are n/N (%), unless othen	wise stated.			

on of sentinel lymph nodes, according to selected

- In women SNLB before neoadjuvant chemotherapy (arm A + B) detection rate was 99·1%
- In patients who had a second SNLB after neoadjuvant chemotherapy (arm B), the detection rate was 60.8%

In patients who **converted after neoadjuvant CT from cN+ to ycN0** (arm C), the **detection rate was 80.1**%

Sentinel-lymph-node biopsy in patients with breast cancer before and after neoadjuvant chemotherapy (SENTINA): a prospective, multicentre cohort study

	Arm B (n=64)	Arm C (n=226)								
Overall false-negative rate (n/N; 95% CI)	51.6% (33/64; 38.7-64.2)	14.2% (32/226; 9.9-19.4)								
False-negative rate, according to number of sentinel nodes removed										
1	66.7% (16/24)	24.3% (17/70)								
2	53·8% (7/13)	18·5% (10/54)								
3	50-0% (5/10)	7.3% (3/41)								
4	50-0% (3/6)	0.0% (0/28)								
5	18.2% (2/11)	6.1% (2/33)								
False-negative rate, according to detection te	chnique									
Radiocolloid alone	46-2% (18/39)	16.0% (23/144)								
Radiocolloid and blue dye	60.9% (14/25)	8.6% (6/70)								

Table 4: False-negative rate of sentinel-lymph-node resection in patients with positive nodes, according to selected factors

In patients who converted after neoadjuvant chemotherapy from cN+ to ycN0 (arm C), false-negative rate was 14·2%

- In patients who had a **second sentinellymph-node biopsy** procedure after neoadjuvant chemotherapy (arm B), **false-negative rate was 51.6%**
- A significant relation was seen between the number of resected sentinel lymph nodes and the false-negative rate

- Sentinel-lymph-node biopsy is a reliable diagnostic method before neoadjuvant chemotherapy.
- After systemic treatment or early sentinel-lymph-node biopsy, the procedure has a lower detection rate and a higher false negative rate

Meta-analysis of sentinel lymph node biopsy after preoperative chemotherapy in patients with breast cancer

Table 5 Within-study comparison of sentinel lymph node biopsysensitivity for women with breast cancer treated with andwithout preoperative chemotherapy

	Sensi	itivity after	Sensitivity without				
	prec	operative	preoperative				
	chen	notherapy	chemotherapy				
Reference	No. of patients	%	No. of patients	%			
11	6 of 9	67 (35, 88)	20 of 22	91 (72, 98)			
12	16 of 20	80 (58, 92)	8 of 10	80 (48, 94)			
13	15 of 15	100 (79, 100)	200 of 225	89 (84, 92)			
25	19 of 19	100 (83, 100)	19 of 21	90 (71, 97)			
26	24 of 27	89 (72, 96)	91 of 101	90 (83, 95)			
Pooled	80 of 90	89 (81, 94)	338 of 379	89 (86, 92)			

Meta-analyses resulted in estimates for **identification rates of 91%** (95% IC 88 to 94) and **sensitivity of 88%** (95% IC 84 to 91) respectively.

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SLNB is a reliable tool for planning treatment after preoperative chemotherapy.

Is sentinel lymph node biopsy a viable alternative to complete axillary dissection following neoadjuvant chemotherapy in women with node-positive breast cancer at diagnosis? An updated meta-analysis involving 3,398 patients

Study name	Statistics for each study E			Statistics for each study Event rate and 95% Cl Studyname.			Statistics for each study					Event rate and 95% Cl								
	Event rate	Lower limit	Upper limit	Z-Value j	p-Value							Event rate	Lower	Upper limit	Z-Value	p-Value				
Alvarado et al 2012	0,208	0,150	0,280	-6,646	0,000				=+		Alvarado et al 2012	0,930	0,879	0,961	8,374	0,000	1	T	- Ť	- T
Bioleau et al 2014	0,084	0,049	0,140	-0, 190	0,000						Bioleau et al 2014	0,876	0,818	0,917	8,524	0,000				
Proup et al 2010	0,120	0,105	0,155	- 10,07 1	0,000			^			Boughey et al 2013	0,929	0,908	0,945	17,989	0,000				
Canavese et al 2011	0,220	0,140	0,320	-5 1/5	0,000			_ _	- 7		Canavese et al 2011	0,938	0,850	0,976	5,402	0,000				
Classe et al 2009	0,115	0,077	0,168	-9,091	0,000			1-1	-		Classe et al 2009	0,900	0,852	0,933	9,710	0,000				
Kang et al 2011	0,171	0.098	0,281	-4.828	0,000						Kang et al 2011	0,957	0,874	0,986	5,228	0,000				
Kimet al 2015	0.100	0.074	0.134	-12,951	0.000						Kimet al 2015	0,960	0,936	0,975	12,486	0,000				
Koslowet al 2014	0.083	0.042	0.157	-6,494	0.000			_ -	⊢		Koslowet al 2014	0,980	0.923	0,995	5,394	0.000				
Kuehn et al 2013	0,142	0,116	0,173	-15,277	0,000						Kuehn et al 2013	0,801	0.771	0.828	15,114	0.000				
Lee et al 2007	0,056	0,033	0,093	-10,020	0,000			■-			Lee et al 2007	0,776	0,726	0,819	9,077	0,000				
Ozmen et al2010	0,137	0,077	0,233	-5,553	0,000				-		Ozmen et al 2010	0,920	0,839	0,962	6,073	0,000				
Park et al 2013	0,220	0,165	0,287	-6,995	0,000				-		Parket al 2013	0,949	0,907	0,973	8,819	0,000				
Rebollo-Aguirre et al 2013	0,083	0,033	0,195	-4,779	0,000						Rebollo-Aquirre et al 2013	0.849	0.736	0.919	4,829	0.000				
Rebollo-Aquirre et al 2012	0,083	0,041	0,162	-6,217	0,000						Rebollo-Aquirre et al 2012	0,920	0,846	0,960	6,492	0,000				
Shen et al	0,250	0,154	0,379	-3,560	0,000						Shen et al	0,928	0,829	0,972	5,118	0,000				
lakel et al 2013	0,082	0,043	0,151	-6,800	0,000						Thomas et al 2011	0,867	0,710	0,945	3,765	0,000				
Voorte et al 2011	0,200	0,093	0,3/9	-3,037	0,002				_	°	Yaqata et al 2013	0,853	0,774	0,908	6,560	0,000				
rayata et al 2013	0,15/	0,097	0,240	-0,900	0,000				▲	11	0	0,909	0.876	0,934	12,810	0,000				
	0,130	0,100	0,100	-17,710	0,000	-0,50	-0,25	0,00	0,25	0,50						0.0 1 .000	-1,00	-0,50	0,00	0,50
						2	Favours A		Favours	3								Favours /	A	Favours

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The pooled estimate of the **IR was 91%** and that of the **FNR of 13%**

SLNB after NAC in biopsy-proven node-positive patients results in reasonably acceptable FNR and IR, making it a valid alternative management strategy to axillary dissection

Sentinel Lymph Node Surgery After Neoadjuvant Chemotherapy in Patients With Node-Positive Breast Cancer The ACOSOG Z1071 (Alliance) Clinical Trial

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Table 3. Factors Affecting the Likelihood of a False-Negative Sentinel Lymph Node Finding in the 310 Women With cN1 Disease at Presentation, 2 or More SLNs Examined, and Residual Nodal Disease After Neoadjuvant Chemotherapy

	False-Negative SLN Findings, No. (Total)	FNR (95% CI), %	Fisher Exact Test, <i>P</i> Value
Age, y			
18.0-49.9	20 (150)	13.3 (8.3-19.8)	72
≥50.0	19 (160)	11.9 (7.3-17.9)	./3
BMI			
≥25.0	25 (227)	11.0 (7.3-15.8)	10
<25.0	14 (83)	16.9 (9.5-26.7)	.18
Clinical T category prior to chemotherapy			
Tis, T0, T1, or T2	32 (225)	14.2 (9.9-19.5)	10
T3 or T4	7 (85)	8.2 (3.4-16.2)	.18
Chemotherapy duration, mo			
≤4.0	20 (201)	10.0 (6.2-15.0)	07
≥4.1	19 (109)	17.4 (10.8-25.9)	.07
Palpable, fixed, or matted nodes after chemotherapy ^a			
Yes	10 (52)	19.2 (9.6-32.5)	17
No	28 (247)	11.3 (7.7-16.0)	.17
Mapping agents used			
Single	12 (59)	20.3 (11.0-32.8)	05
Dual	27 (251)	10.8 (7.2-15.3)	.05
Multiple injection sites ^b			
Yes	5 (70)	7.1 (2.4-15.9)	21
No	30 (225)	13.3 (9.2-18.5)	.21
No. of SLNs examined			
2	19 (90)	21.1 (13.2-31.0)	007
≥3	20 (220)	9.1 (5.6-13.7)	.007

- 649 patients with cN1 disease, underwent chemotherapy followed by both SLN surgery and ALND.
- **Detection rate was 96.9% and FNR 12.6%** (if ≥ 2 SNLNs were identified)

Pathological complete nodal response was 41.0%

both the use of dual-agent mapping and recovery of more than 2 SLNs were associated with a lower likelihood of false-negative SLN findings

Until further data are available, we recommend that SLN surgery after chemotherapy **not be performed in patients with clinically evident residual nodal disease or poor response to chemotherapy**.

Sentinel Node Biopsy After Neoadjuvant Chemotherapy in Biopsy-Proven Node-Positive Breast Cancer: The SN FNAC Study

	FNF	1	NP	/	Accura	су	
Factor	No.	%	No.	%	No.	%	Р
No. of SNs removed							.076
1	4 of 22	18.2	11 of 15	73.3	29 of 33	87.9	
≥ 2	3 of 61	4.9	32 of 35	91.4	90 of 93	96.8	
Method of lymph node mapping							.190
Isotope only	4 of 25	16.0	10 of 14	71.4	31 of 35	88.6	
Dual tracers (isotope and blue dye)	3 of 58	5.2	34 of 37	91.9	89 of 92	96.7	
Definition of positive SN							
Any size (ypN0[i+] + ypN1mi + ypN1)	7 of 83	8.4	44 of 51	86.3	120 of 127	94.5	
> 0.2 mm (ypN1mi + ypN1)	11 of 83	13.3	44 of 55	80.0	116 of 127	91.3	
> 2 mm (ypN1)	14 of 83	16.9	44 of 58	75.9	113 of 127	89.0	
Clinical stage at presentation							
T stage							
то	1 of 4	25.0	1 of 2	50.0	4 of 5	80.0	
T1	0 of 7	0.0	1 of 1	100.0	8 of 8	100.0	
T2	1 of 37	2.7	27 of 28	96.4	63 of 64	98.4	
T3	5 of 35	14.3	15 of 20	75.0	45 of 50	90.0	
N stage							
NO	0 of 11	0.0	3 of 3	100.0	14 of 14	100.0	
N1	7 of 67	10.4	38 of 45	84.4	98 of 105	93.3	
N2	0 of 4	0.0	3 of 3	100.0	7 of 7	100.0	

- 153 patients with biopsy-proven node-positive breast cancer (T0-3, N1-2) underwent both SNB and CND.
- IHC use was mandatory, and SN metastases of any size, including isolated tumor cells (ypN0[i], 0.2 mm) were considered positive.
- The SNB IR was 87.6%, and the FNR was 8.4%.
- If SN ypN0(i)s had been considered negative, the FNR would have increased to 13.3%
- the **FNR** of SNB after NAC was **decreased with the use of dual tracers and when 2. SLNs were removed**

Swedish prospective multicenter trial evaluating sentinel lymph node biopsy after neoadjuvant systemic therapy in clinically node-positive breast cancer

Scenario	True pos (n)	False neg (n)	FNR ^a (%)	
Overall	79	13	14.1	
Dual mapping performed	71	11	13.4	
IBC excluded $(n = 15)$	76	11	12.6	
ITC considered ypN+	87	10	10.3	
SLNB with 1 node retrieved	31	11	26.2	
SLNB with ≥ 2 nodes	48	2	4.0	
SLNB with ≥ 3 nodes	23	0	0.0	

False negative SLN findings after NAC in different scenarios

^a Calculated as the number of patients with a false negative SLN in each scenario divided by the number of false negative and true positive SLNs in the same scenario

NAST neoadjuvant systemic therapy, *FNR* false negative rate, *SLN* sentinel lymph node, *SLNB* sentinel lymph node biopsy, *IBC* inflammatory breast cancer, *ITC* isolated tumor cells, *FNR* false negative rate

The SLN identification rate was 77.9% but improved to 80.7% with dual mapping.

A positive SLNB was found in 52%, almost 66% of whom had additional positive non-sentinel lymph nodes.

The overall pathologic nodal response rate was 33.3% (66/195).

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The overall FNR was 14.1% but decreased to 4% when only patients with two or more sentinel nodes were analyzed.

In biopsy-proven node-positive breast cancer, SLNB after NAC is feasible even though the identification rate is lower than in clinically node-negative patients

Caveats of SLNB after NAC

For cN+ patients after NAC completion the SLNB seems to be insufficient, with reported FNRs ranging from 7% to 25%.

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- Because the SLNB aims to identify patients with an ax-pCR without missing residual disease, a **negative predictive value** (NPV) of 95% would be desirable.
- A high NPV is especially important because **residual tumor is considered resistant to administered chemotherapy and might require additional treatment**

How to decrease the FNR of SLNB after NAC in biopsyproven node-positive breast cancer patients ?

Selecting only patients with ≥ 2 (3) SLNs identified

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- Broadening the definition of SLN metastasis after NAC to include isolated tumor cells
- Selecting only patients with sonographically unsuspicious
 lymph nodes for SLNB after NAC
- Use of **nomograms** for predicting nonsentinel lymph node metastasis after NAC
 - Pre-NAC marking of the cytologically verified lymph node

Using ultrasound and palpation for predicting axillary lymph node status following neoadjuvant chemotherapy e Results from the multi-center SENTINA trial

		C	cN after NST overall evaluation								
		1	Negative								
		1	N			%			N	5	6
pN Negative Positive	298 294			50.3 49.7				28 95	1	22.8 77.2	
Predictive test	True negative	False negative	True positive	False positive	Sensitivity, %	False negative rate, %	Specificity, %	False positive rate, %	Positive predictive value, %	Negative predicti value, %	ive
cN after NACT overall evaluation	298	294	95	28	24.4	75.6	91.4	8.6	77.2	50.3	

Arm C/D pathologic nodal status vs. investigator defined cN status.

- The investigators combined classification (palpation and ultrasound) resulted in a sensitivity of 24.4%, specificity 91.4%, and a NPV of 50.3%.
- Of 592 patients with **unsuspicious axillary nodes** Schwentner et al The Breast 31 (2017) 202e207

Predictive Factors for Nonsentinel Lymph Node Metastasis in Patients With Positive Sentinel Lymph Nodes After Neoadjuvant Chemotherapy: Nomogram for Predicting Nonsentinel Lymph Node Metastasis



- Pathologic T stage, lymphovascular invasion, SLN metastasis size, and number of positive SLN metastases were independent predictors for NSLN metastases (P < .05)
- · The NAC nomogram was based on these 4 Cancer 2017

Marking Axillary Lymph Nodes With Radioactive Iodine Seeds for Axillary Staging After Neoadjuvant Systemic Treatment in Breast Cancer Patients The MARI Procedure



FIGURE 1. A, Insertion of a radioactive iodine seed in an axillary lymph node under ultrasound guidance. The black arrow indicates the tip of an 18-G needle through which the iodine seed is inserted in the lymph node. B, Position of the iodine seed in the lymph node. C, Excised lymph node with the iodine seed in situ.

Prior to NST, proven tumor-positive axillary lymph nodes were marked with a 125I seed (MARI-node)

- After NST, the MARI node was selectively removed using a γ -detection probe and a complementary axillary lymph node dissection was performed in all patients
- Identification rate was 97% and false negative rate was 7%.

Improved Axillary Evaluation Following Neoadjuvant Therapy for Patients With Node-Positive Breast Cancer Using Selective Evaluation of Clipped Nodes: Implementation of Targeted Axillary Dissection (TAD)



Iodine-125 seed localized removal of clipped axillary lymph nodes

Patients undergoing TAD had SLND and selective removal of the clipped node using iodine-125 seed localization placed in the clipped node under ultrasound guidance 1 to 5 days before surgery.

FNR of the clipped node was 4.2% (95% Cl, 1.4 to 9.5)

FNR of SNLD was 10.1% (95% CI, 4.2 to 19.8)

FNR of TAD was 2.0% (1 of 50; 95% CI, 0.05 to 10.7).

Marking nodes with biopsy-confirmed metastatic disease allows for selective removal and improves pathologic



Caudle et al, J Clin Oncol 34:1072-1078. © 2016

Feasibility of Charcoal Tattooing of Cytology-Proven Metastatic Axillary Lymph Node at Diagnosis and Sentinel Lymph Node Biopsy after Neoadjuvant Chemotherapy in Breast Cancer Patients

Fig. 2. Intraoperative photographs and pathologic slides of a sentinel lymph node. (A) Charcoal tattoo (black arrow) and blue dye (blue arrow) tracks during axillary surgery. (B) Excised sentinel node marked with the tattoo and blue dye. Low-power field (H&E staining, x20) (C) and high-power field (H&E staining, x100) (D) microscopic views show tattoo pigments with no residual metastatic carcinoma in the sentinel node.



- 20 patients with cytology-proven node metastases prospectively underwent charcoal tattooing at diagnosis.
- SLNB using dual tracers and axillary surgery after NCT were then performed.
- False-negative rate (FNR), of hot/blue SLNB was 20.0%,
- When excised tattooed node and SNLB were calculated together FNR was 0.0%)
- The tattooing procedure without additional preoperative localization is advantageous for improving the diagnostic performance of SLNB in this setting

Nodal axillary management N+ breast cancer patients undergoing NAC MARI vs TAD vs RISAS vs Charcoal tattooing

Kyoto Breast Cancer Consensus Conference 1

De-escalation of axillary surgery in early breast cancer

Ismail Jatoi, John R Benson, Masakazu Toi

"Downstaging of biopsy-proven node-positive patients with neoadjuvant chemotherapy could safely permit sentinel lymph node biopsy alone when the index node has been successfully retrieved at surgery, while nodal deposits of any size continue to mandate completion axillary lymph node dissection"

De-escalating and escalating surgery in the management of early breast cancer



- Patients presenting with **nodal disease (cN1)** have no option other than **neoadjuvant therapy to avoid axillary dissection**.
- Patients who are cNO and ER+ having BCS should have initial surgery, while those who are ERor HER2+ having mastectomy should receive NAC.
- For TN or HER2 + patients having breast conservation, the likelihood of ALND does not differ for initial surgery versus NAC and the same is true for ER + patients having masteetomy. The Breast, in press 2017

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NCCN Guidelines Version 2.2017 Invasive Breast Cancer

PREOPERATIVE SYSTEMIC THERAPY: BREAST AND AXILLARY EVALUATION



ⁱⁱMarking of sampled axillary nodes with a tattoo or clip should be considered to permit verification that the biopsy-positive lymph node has been removed at the time of definitive surgery. ^{jj}Among patients shown to be node-positive prior to preoperative systemic therapy, SLNB has a >10% false-negative rate when performed after preoperative systemic therapy. This rate can be improved by marking biopsied lymph nodes to document their removal, using dual tracer, and by removing more than 2 sentinel nodes.

Note: All recommendations are category 2A unless otherwise indicated. Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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Annals of Oncology 28: 1700–1712, 2017 doi:10.1093/annonc/mdx308 Published online 21 June 2017

SPECIAL ARTICLE

De-escalating and escalating treatments for early-stage breast cancer: the St. Gallen International Expert Consensus Conference on the Primary Therapy of Early Breast Cancer 2017

Axillary surgery following neoadjuvant therapy

- In a woman who presented with a clinically negative axilla and who received neoadjuvant treatment, the Panel strongly believed sentinel node biopsy to be appropriate and favored the biopsy be carried out after neoadjuvant treatment.
 - There was more controversy regarding sentinel node surgery for women who presented with a clinically positive axilla, and had a clinical response with down staging to a clinically negative axilla. The Panel believed sentinel node biopsy, as opposed to axillary dissection, to be adequate if at least three or more negative sentinel nodes were detected and examined. Because of concerns for false-negative results with limited sampling, sentinel node surgery was generally considered not adequate if only one or two negative sentinel nodes were identified.
- The Panel recommended that **patients with a clinically positive axilla or with macrometastases** identified **in sentinel nodes after neoadjuvant therapy** undergo **completion axillary dissection**
 - The Panel was split on whether residual micro-metastatic lymph node involvement warranted completion dissection after neoadjuvant therapy.

Work in progress

 The NSABP B-51/RTOG1304 trial is currently evaluating the benefit of locoregional radiotherapy in patients who initially present with axillary nodal involvement and who have histologically negative nodes after NAC

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For patients who present with **documented axillary lymph node involvement** and have a **positive SLN biopsy after NAC**, The **ALLIANCE 11202 trial** (NCT01901094) randomly assigns to **completion ALND or to no further axillary surgery** (assuming that regional nodal radiotherapy will be used) to assess whether further decrease in the need for ALND can be achieved

Problemi aperti

- · Utilizzo del doppio tracciante per la ricerca del LFNS
- · Indicazione a DA in caso di micrometastasi/ITC del LFNS
- Numero di LFNS esaminati sufficiente ad evitare la DA di completamento
- Metodo di localizzazione del LFN MTS dopo CT neoadiuvante