Ændringer i de kirurgiske retningslinjer for NACT

- Udvidelse af indikationen til N+ patienter

- Anbefaling af tidsinterval mellem NACT og kirurgi

  Rekonstruktion

  Onkoplastik

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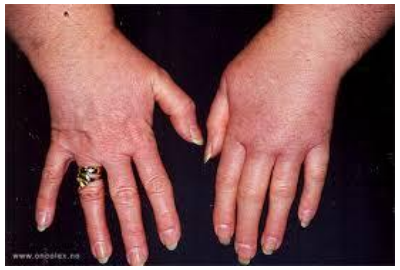
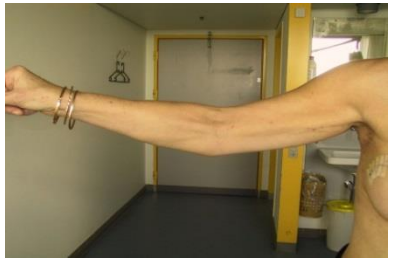
Senfølger efter aksilrømning

Spørgeskemaundersøgelse på 3.253 pt fra DBCG opereret 2005 - 2006

Lymfødem:	42 - 65%
Smerter:	43 – 58%
Føleforstyrrelser:	64 – 81%
Bevægeindskrænkning:	20 - 44%





Gärtner et al: JAMA, November 11, 2009, vol 302, No. 18
Gärtner et al: The Breast, 2010, s. 1 - 10

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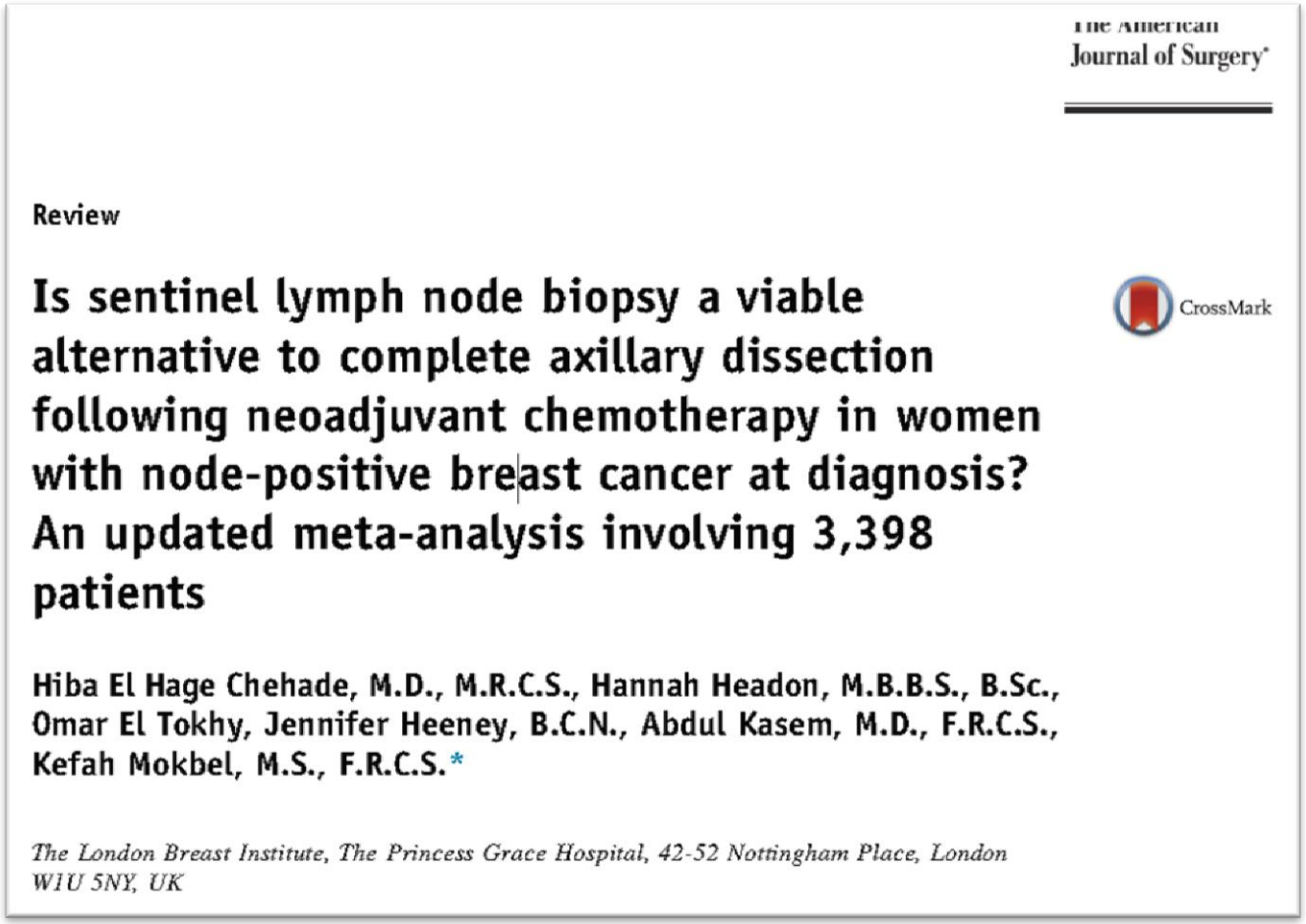
Hvor mange downstages i aksillen efter NACT? Og hvem?

- Meta-analyse fra 2016
- Patienter, der er N+ før NACT
- I alt 3.398 patienter, fordelt på 19 studier



The American Journal of Surgery

Review

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

Hiba El Hage Chehade, M.D., M.R.C.S., Hannah Headon, M.B.B.S., B.Sc., Omar El Tokhy, Jennifer Heeney, B.C.N., Abdul Kasem, M.D., F.R.C.S., Kefah Mokbel, M.S., F.R.C.S.*

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pCR (aksil)= **39%** (21,5% - 83,9%)

Trend mod højere pCR ved N1 vs. N2-3

Ingen sammenhæng med receptorstatus eller type, men kun få studier rapporterer receptorstatus

Table 1 Characteristics of the included studies

Study	Design	Method of preneoadjuvent chemotherapy nodal disease verification	SLN IR	FNR	pCR rate	cCR (%)	ycN- only
Yagata et al, 2013[20]	Prospective	Pathological (FNAC)	85.30%	15.70%	37.00%	NR	No
Rebollo-Aquirre et al, 2012[27]	Prospective	Pathological in 24/37 node-positive patients. The rest were proven by physical examination and/or radiologically (USS)	92%	8.30%	67.50%	NR	No
Kim et al, 2015[25]	Prospective	Pathological (FNAC)	96%	10%	20.20%	NR	No
Koslow et al, 2014[23]	Prospective	Physical examination and radiological	98%	8.30%	NR	NR	No
Boughey et al, 2013[22]	Prospective	Pathological (FNAC or CNB)	92.90%	12.60%	41%	83.9	No
Rebollo-Aguirre et al, 2013[28]	Prospective	Pathological in 84.9%	84.90%	8.30%	NR	NR	Yes
Alvarado et al, 2012[30]	Prospective	Pathological (FNAC)	93%	20.80%	42%	52.7	No
Takei et al, 2013[24]	Prospective	Physical examination and radiological (USS + mammo)	NR	8.20%	NR	NR	No
Thomas et al, 2011[29]	Prospective	Pathological	86.67%	20%	NR	NR	Yes
Canavese et al, 2011[22]	Prospective	Physical examination and radiological (USS, negative disease confirmed by PET-CT scan)	93.80%	5.10%	34.40%	62.5	No
Ozmen et al, 2010[26]	Prospective	Pathological (FNAC)	92%	13.70%	28.20%	26.0	Yes
Shen et al, 2007[5]	Prospective	Pathological (FNAC)	92.80%	25%	28.60%	58.0	No
Classe et al, 2009[21]	Prospective	Pathological (CNB)	90%	11.50%	NR	21.5	No
Boileau et al, 2015[33]	Prospective	Pathological	87.60%	8.40%	34.60%	NR	No
Park et al, 2013[27]	Prospective	Pathological (FNAC)	94.90%	22%	40.80%	40.8	No
Brown et al, 2010[23]	Prospective	Pathological (FNAC)	NR	22%	30.20%	NR	No
Kang et al, 2011[24]	Prospective	Pathological (FNAC)	95.70%	17.10%	28.80%	34.8%	No
Lee et al, 2007[26]	Prospective	Pathological (FNAC) or radiological (USS and PET-CT)	77.60%	5.60%	21.50%	21.5	No
Kuehn et al, 2013[25]	Prospective	Pathological (FNAC or CNB) in 25%. The rest by physical examination and radiological (USS)	80.10%	14.20%	89.00%	82.8	Yes

cCR clinically complete response of axillary lymph nodes to NAC; CNB core needle biopsy; FNAC fine needle aspiration cytology; FNR false negative rate; IR identification rate; NR not reported; pCR pathological complete response; PET-CT position emission tomography–computed tomography; SLN sentinel lymph node; USS ultrasound scan; ycN clinically node-negative patients after NAC.

Original article

BJS Open Open Access

Impact of receptor phenotype on nodal burden in patients with breast cancer who have undergone neoadjuvant chemotherapy

M. R. Boland[1], T. P. McVeigh[4], N. O'Flaherty[4], G. Gullo[2], M. Keane[5], C. M. Quinn[3], E. W. McDermott[1], A. J. Lowery[4], M. J. Kerin[4] and R. S. Prichard[1]

Departments of [1]Breast Surgery, [2]Oncology and [3]Pathology, St Vincent's University Hospital, Dublin, and Departments of [4]Breast Surgery and [5]Oncology, University College Hospital Galway, Galway, Ireland

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284 N+ patienter før NACT

Luminal A	54%
Luminal B	22%
HER2+	13%
TNBC	10%

pCR i aksil = **37,4%**

Receptor phenotype				
Luminal A	Luminal B–Her2	Her2-overexpressing	Basal-like	Total
35 (22·9)	28 (44)	27 (77)	15 (52)	105 (37·4)

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Ann Surg Oncol (2016) 23:3467–3474
DOI 10.1245/s10434-016-5246-8

Annals of SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

CrossMark

ORIGINAL ARTICLE – BREAST ONCOLOGY

How Often Does Neoadjuvant Chemotherapy Avoid Axillary Dissection in Patients With Histologically Confirmed Nodal Metastases? Results of a Prospective Study

Anita Mamtani, MD[1], Andrea V. Barrio, MD[1], Tari A. King, MD[2], Kimberly J. Van Zee, MD[1], George Plitas, MD[1], Melissa Pilewskie, MD[1], Mahmoud El-Tamer, MD[1], Mary L. Gemignani, MD[1], Alexandra S. Heerdt, MD[1], Lisa M. Sclafani, MD[1], Virgilio Sacchini, MD[1], Hiram S. Cody III, MD[1], Sujata Patil, PhD[3], and Monica Morrow, MD[1]

[1]Breast Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY ; [2]Department of Breast Surgery, Dana Farber/Brigham and Women's Cancer Center, Boston, MA; [3]Department of Epidemiology and Biostatistics, Memorial Sloan Kettering Cancer Center, New York, NY

195 N+ før NACT

55% ER pos
16% ER-/HER2+
29% TNBC

pCR i aksillen = **49%**

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TABLE 2 Rates of pathologic complete response in entire cohort ($n = 195$) stratified by receptor status

Receptor status	Overall pCR (ypT0 N0)		Nodal pCR (ypN0)		Breast pCR (ypT0)[a]			Breast pCR (ypT0/is)[a]		
	n	%	*n*	%	*n*	%	*p* value[b]	*n*	%	*p* value[b]
Any	47/195	24	96/195	49	53/193	28	<0.0001	71/193	37	<0.0001
ER+ HER2−	3/73	4	15/73	21	4/73	5	0.03	7/73	10	0.003
ER+ HER2+	13/37	35	26/37	70	17/37	46	0.5	22/37	59	0.3
ER− HER2+	17/30	57	29/30	97	17/30	57	0.4	21/30	70	0.3
ER− HER2−	14/55	25	26/55	47	15/53	28	0.0005	21/53	40	<0.0001

pCR pathologic complete response, *ER* estrogen receptor, *PR* progesterone receptor

[a] Two patients with occult breast primary, excluded from analysis

[b] *p* value calculations performed vs nodal pCR

ACOSOG Z1071 (Alliance)

- Prospektivt multicenter trial, 2009 – 2011
- 525 patienter (136 centre)
- Klinisk node positive før NACT
- Eksision af 2 eller flere SN efter NACT samt efterfølgende ALND

Andel med aksil pCR fordelt på subtyper		
Alle	694	285 **(41,1%)**
ERpos/HER2neg	317	67 (21,1%)
HER2pos	207	134 (64,7%)
TNBC	170	84 (49,4%)

Boughey et al, JAMA. 2013 Oct 9;310(14):1455-61.

Konklusion:

Hos N+ patienter bliver

ca 50 % TNBC

ca 70% HER2 pos BC

N- efter NACT og kan spares en aksilrømning

Alle disse patienter tilbydes i forvejen kemoterapi

Forslag til retningslinjeændring:

- **NACT tilbydes til N+ patienter med TNBC eller HER2 pos BC uanset tumorstørrelse.**

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Hvad er det optimale tidsinterval mellem NACT og rekonstruktion/onkoplastik?

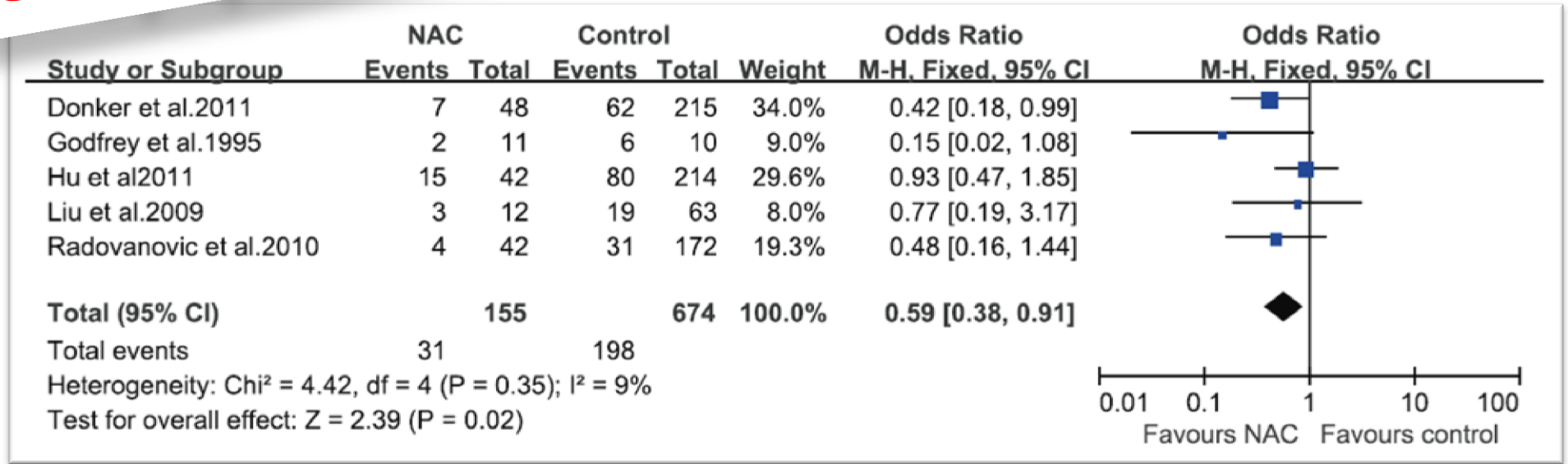
Impact of Neoadjuvant Chemotherapy on Immediate Breast Reconstruction: A Meta-Analysis

Junlong Song[1], Xiang Zhang[1], Qiang Liu[2], Jianheng Peng[1], Xinjie Liang[1], Hongyuan Li[1]*

1 Department of Endocrine and Breast Surgery, The First ... 2 Department of General Surgery, The People's Hospital of Dazu County, Ch...

Ingen oplysninger om tidsinterval

11 studier
1840 patienter



Study or Subgroup	NAC Events	NAC Total	Control Events	Control Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Donker et al.2011	7	48	62	215	34.0%	0.42 [0.18, 0.99]
Godfrey et al.1995	2	11	6	10	9.0%	0.15 [0.02, 1.08]
Hu et al2011	15	42	80	214	29.6%	0.93 [0.47, 1.85]
Liu et al.2009	3	12	19	63	8.0%	0.77 [0.19, 3.17]
Radovanovic et al.2010	4	42	31	172	19.3%	0.48 [0.16, 1.44]
Total (95% CI)		**155**		**674**	**100.0%**	**0.59 [0.38, 0.91]**
Total events	31		198			

Heterogeneity: Chi² = 4.42, df = 4 (P = 0.35); I² = 9%
Test for overall effect: Z = 2.39 (P = 0.02)

Nyere studier: rekonstruktion

Ann Surg Oncol (2019) 26:2768–2772
https://doi.org/10.1245/s10434-019-07418-4

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SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BREAST ONCOLOGY

Neoadjuvant Chemotherapy and Nipple-Sparing Mastectomy: Timing and Postoperative Complications

Alex J. Bartholomew, MS[1], Ornela A. Dervishaj, MD[1], Michael Sosin, MD[2], Lauren T. Kerivan, BS[1], Shawndeep S. Tung, MD[1], Diana L. Caragacianu, MD[1], Shawna C. Willey, MD[1], and Eleni A. Tousimis, MD, FACS[1]

[1]Department of Surgery, Division of Breast Surgery, MedStar Georgetown University Hospital, Washington, DC; [2]NYU Langone Health, Hansjörg Wyss Department of Plastic Surgery, New York, NY

Retrospektivt studie, 832 patienter hvoraf 88 får NACT

Komplikationsrate 10,1 %

Ingen forskel mellem NACT vs primær kirurg

Gennemsnit 40 dg mellem NACT og Kirurgi

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Tidsinterval mellem NACT og OP		
<4 uger	4 – 6 uger	>6 uger
19,0 %	41,7 %	39,3 %

Ingen signifikant forskel i komplikationsraten mellem tidsperioderne

Univariat analyse p=0.333

Multivariat analyse p=0,141
(BMI, alder, rygning, RT, bryststørrelse)

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Nyere studier: Onkoplastik

Ann Surg Oncol (2019) 26:2730–2737
https://doi.org/10.1245/s10434-019-07408-6

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OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BREAST ONCOLOGY

Neoadjuvant Chemotherapy does not Increase Complications in Oncoplastic Breast-Conserving Surgery

Karri Adamson, MD[1], Mariana Chavez-MacGregor, MD, MSc[2,3], Abigail Caudle, MD, MS, CMQ, FACS[4], Benjamin Smith, MD[5], Donald Baumann, MD, FACS[1], Jun Liu, PhD[1], and Mark Schaverien, MB ChB, MD, MSc, MEd, FRCS(Plast)[1]

[1]Division of Surgery, Department of Plastic Surgery, The University of Texas MD Anderson Cancer Center, Houston, TX; [2]Department of Breast Medical Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX; [3]Health Services Research Department, The University of Texas MD Anderson Cancer Center, Houston, TX; [4]Division of Surgery, Department of Breast Surgical Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX; [5]Department of Radiation Oncology, Division of Radiation Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX

Retrospektivt studie over 429 patienter, hvoraf 122 fik NACT

Overall complicationrate: 25,9%
Major complications: 9,1%

Ingen forskel mellem NACT og primær kirurgi

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Tidsinterval mellem NACT og OP

<= 4 uger	>4 uger
32 patienter	88 patienter

TABLE 4 Univariate and multivariate analyses of overall complications for patients undergoing oncoplastic breast-conserving surgery who received neoadjuvant systemic chemotherapy

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	*p* Value	OR (95% CI)	*p* Value
Surgery >4 weeks after preoperative chemotherapy versus ≤4 weeks	0.89 (0.36–2.21)	0.81	–	
Taxol chemotherapy	1.05 (0.40–2.76)	0.92	–	
BMI (continuous)	1.07 (1.03–1.11)	< 0.001	1.08 (1.02–1.13)	0.006
Diabetes mellitus	2.70 (1.05–6.97)	0.04	–	
Hypertension	1.93 (0.84–4.41)	0.12	–	
Immediate contralateral mastopexy for symmetry (per breast)	0.34 (0.15–0.80)	0.013	0.17 (0.07–0.46)	0.002
Preoperative WBC count	1.13 (1.04–1.24)	0.005	1.16 (1.06–1.28)	0.001
Preoperative ANC	1.16 (1.02–1.33)	0.024	–	

OR odds ratio, *CI* confidence interval, *BMI* body mass index, *WBC* white blood cell, *ANC* absolute neutrophil count

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Konklusion: Meget sparsom evidens

Forslag til retningslinje:

- **Rekonstruktion eller onkoplastik kan tilbydes udvalgte patienter minimum 3 – 4 uger efter NACT, afhængig af type kemoterapi**

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