ANKARA MEME HASTALIKLARI DERNEĞİ

2018-2019 EĞİTİM DÖNEMİ İKİNCİ TOPLANTISI

Cilt ve Meme Başı Koruyucu Cerrahi Sonrası RT

Dr. Melis Gültekin

Hacettepe Üniversitesi Tıp Fakültesi

Radyasyon Onkolojisi Anabilim Dalı

Cilt ve Meme Başı Koruyucu Cerrahi

- **Amaç:**
  - Daha iyi kozmetik sonuç
  - Minimum komplikasyon
  - Mükemmel onkolojik sonuç

SSM/NSM vs. MRM

- **SSM:** Cilt ve inframammarian fold korunur
- **NSM:** Cilt ve NAC korunur

- Sıklıkla ‘’**rekonstrüksiyon**’’ ile birlikte yapılır!

- Prosp. randomize çalışma yok
- Onkolojik açıdan güvenli

Lanitis S, et al. Ann Surg Oncol 2010
De La Cruz L, et al. Ann Surg Oncol 2015

Kime SSM/NSM?

- Erken evre seçilmiş hastalara:
  - **SSM:**
    - **T1-T3**
  - **NSM:**
    - **Retroareolar doku frozen (-)**
    - **Unifokal**
    - **Tm <2cm**
    - **NAC 2 cm uzakta**

NCCN Guideline, Breast Cancer, 2018

SSM/NSM: Adjuvan RT?

- LN metastazı
- Tm boyutu
- Kötü diferansiye tm
- LVI
- İleri evre olgularda

Yüksek riskli olgularda adjuvan RT!

- Evre III %31

Medina-Franco H, et al. Ann Surg 2002
Carlson GW, et al. Ann Surg Oncol 2003
Meretoja TJ, et al. British J Surg 2007

Kime RT?

- Standart PMRT Endikasyonları:
  - **>5 cm tm**
  - **≥4 LN metastazı**
  - **Fasya-cilt tutulumu (T4)**
  - **Cerrahi sınır (+)**

Int. J. Radiation Oncology Biol. Phys., Vol. 73, No. 4, pp. 997–1002, 2009
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0360-3016/09/$–see front matter

doi:10.1016/j.ijrobp.2008.10.080

REPORT

ACR APPROPRIATENESS CRITERIA® ON POSTMASTECTOMY RADIOTHERAPY

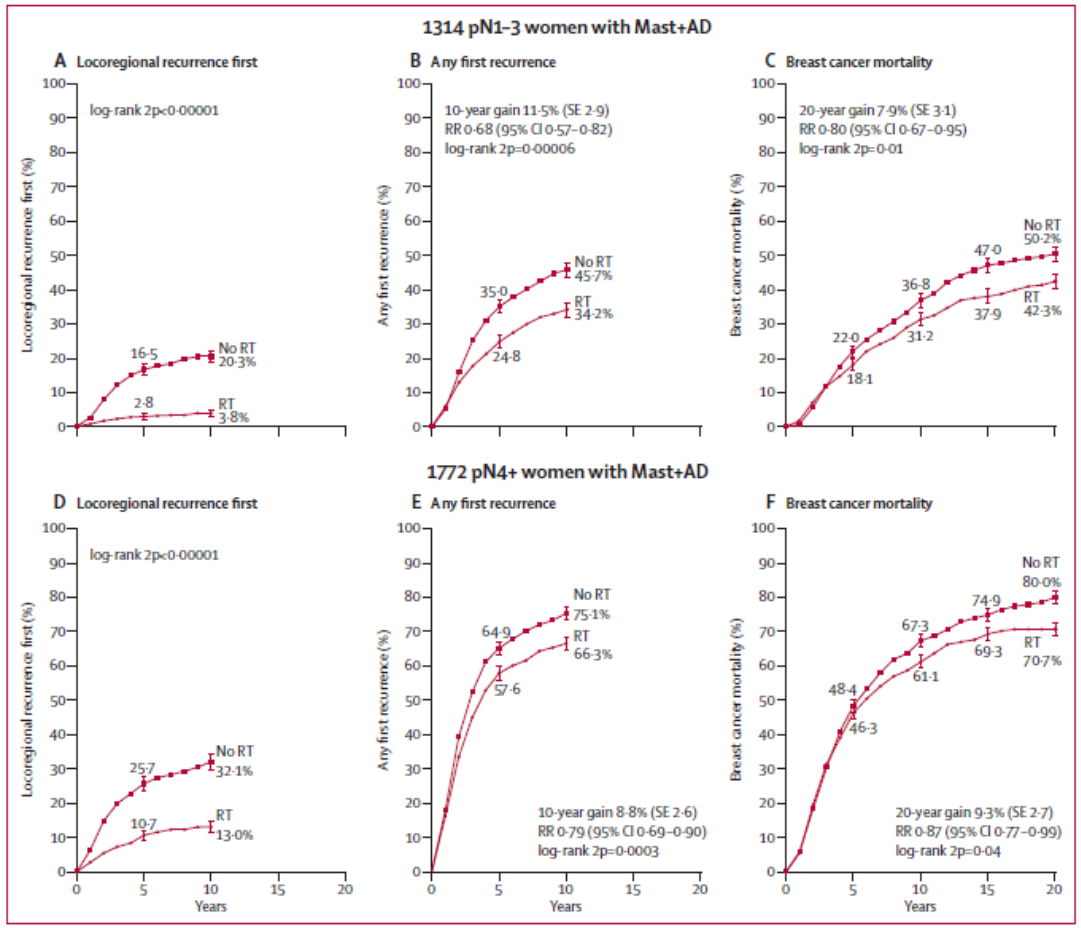
Expert Panel on Radiation Oncology—Breast

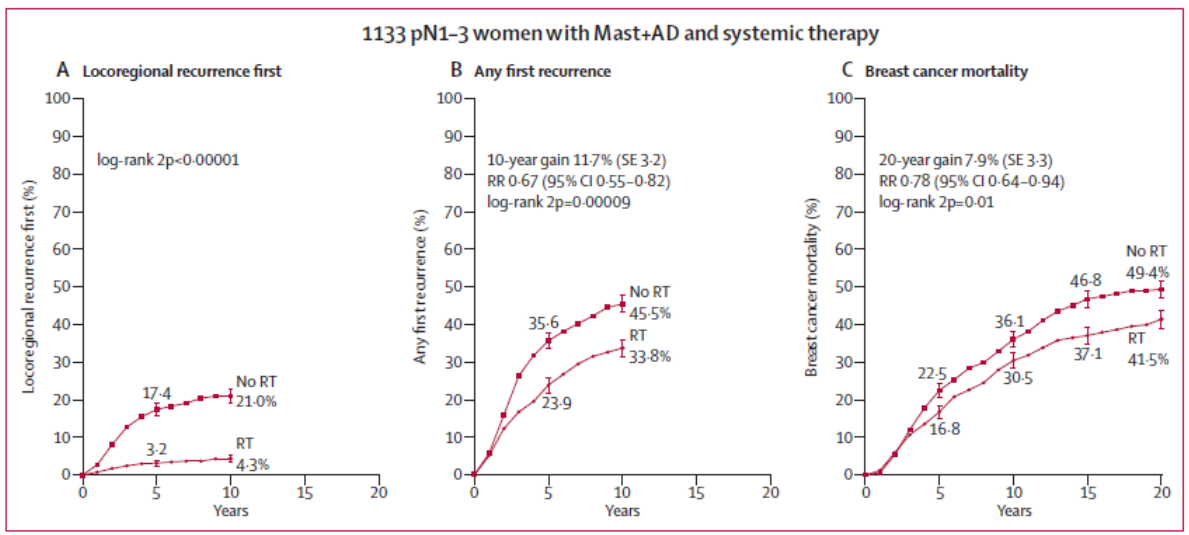
MARIE E. TAYLOR, M.D.,* BRUCE G. HAFFTY, M.D.,† RACHEL RABINOVITCH, M.D.,‡
DOUGLAS W. ARTHUR, M.D.,§ FRANCINE E. HALBERG, M.D.,¶ ERIC A. STROM, M.D.,‖
JULIA R. WHITE, M.D.,** MELODY A. COBLEIGH, M.D.,†† AND STEPHEN B. EDGE, M.D.‡‡

Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: meta-analysis of individual patient data for 8135 women in 22 randomised trials

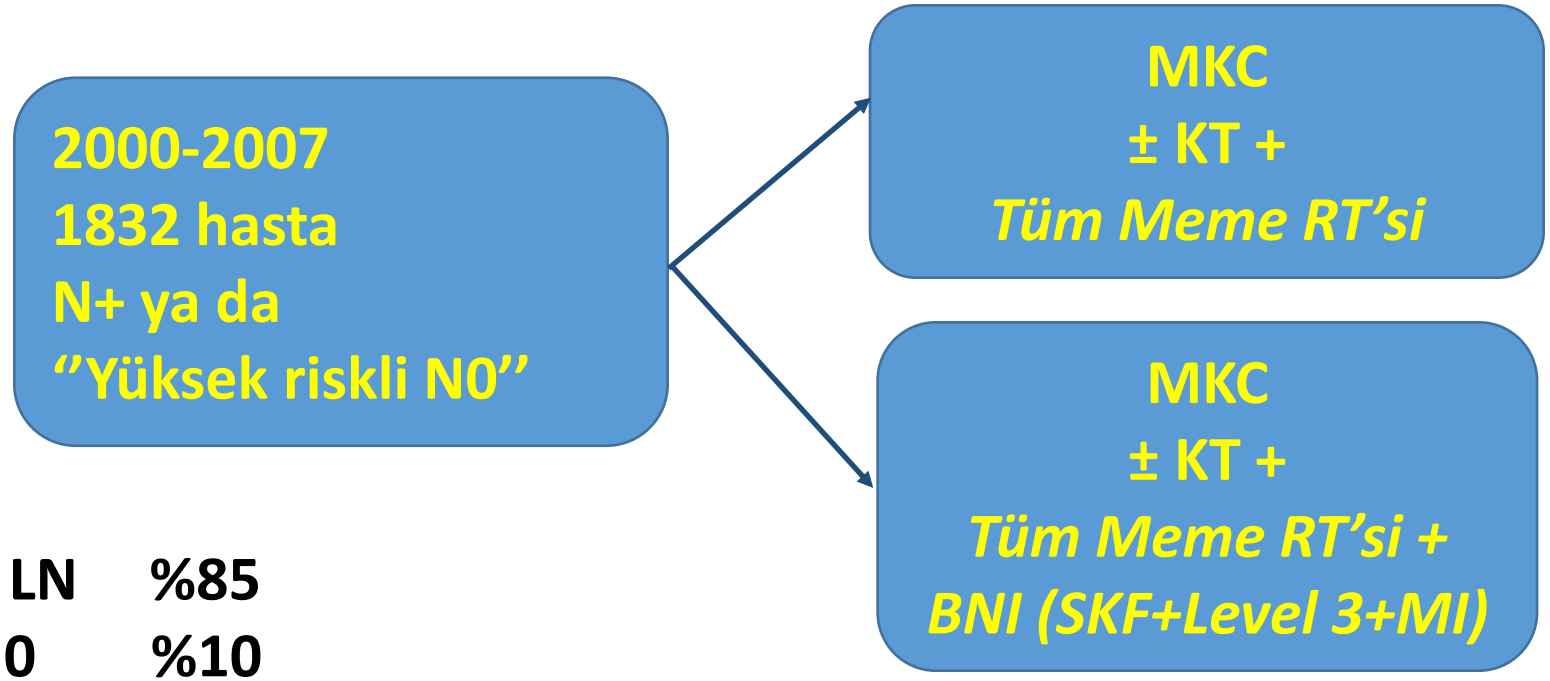
Lancet 2014; 383: 2127–35

*EBCTCG (Early Breast Cancer Trialists' Collaborative Group)**





MA20 Çalışması

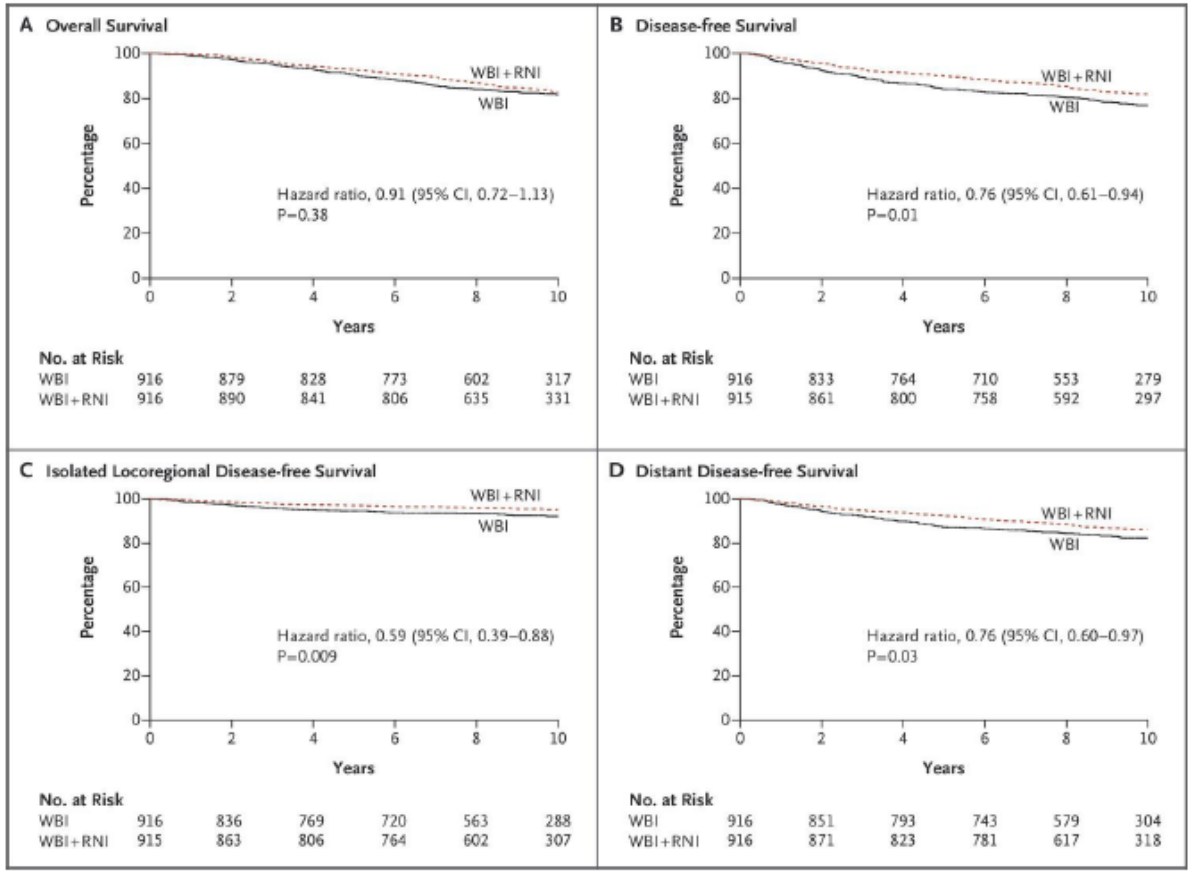


- 1-3+ LN %85
- YR N0 %10
- ≥4+ LN %5
- ER (-) %25
- %91 AC kemoterapisi, %76 HT

Whelan TJ, et al. NEJM 2015

MA20 Çalışması

10 yıllık sonuçlar	TMI	TMI + BNI	p değeri
İzole LBR	%7	%4	**0.009**
HS	%77	%82	**0.01**
LBRS	%92	%95	**0.009**
UMS	%82	%86	**0.03**
GS	%82	%83	0.38



Whelan TJ, et al. NEJM 2015

EORTC Çalışması

- Evre I-III meme kanseri (n=4004)
- %95 pT1-T2
- pN+ (%55.6)
- pN- santral/medial tm (%44.5)
- MKC (%76)/Mastektomi (%24)
- %85 sistemik tedavi

Table 1. Baseline Characteristics of the Patients, According to Study Group.*

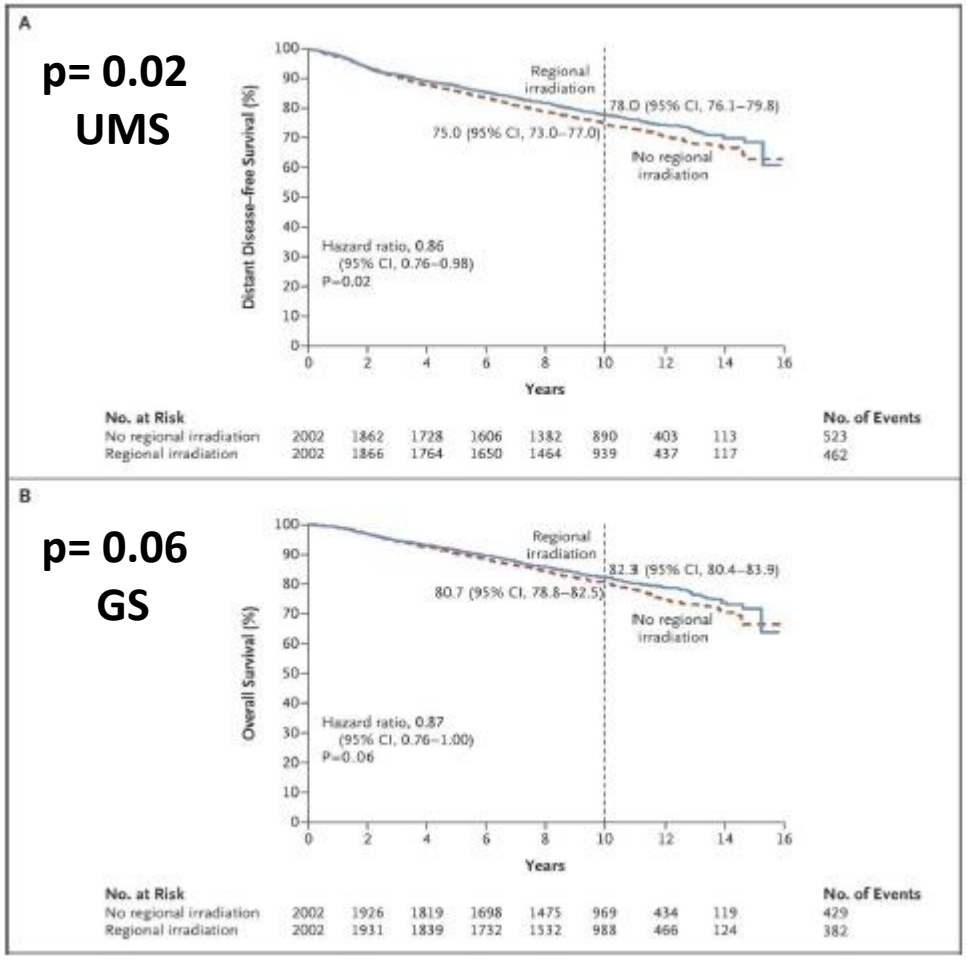
Characteristic	Control Group (N=2002)	Nodal-Irradiation Group (N=2002)	Total (N=4004)
Age — yr			
Median	54.0	54.0	54.0
Range	22.0–75.0	19.0–75.0	19.0–75.0
Type of surgery — no. (%)			
Mastectomy	479 (23.9)	476 (23.8)	955 (23.9)
Breast-conserving surgery	1523 (76.1)	1526 (76.2)	3049 (76.1)
Pathological tumor stage — no. (%)			
pT1: ≤2 cm	1203 (60.1)	1205 (60.2)	2408 (60.1)
pT2: 2–5 cm	714 (35.7)	716 (35.8)	1430 (35.7)
pT3: >5 cm	71 (3.5)	70 (3.5)	141 (3.5)
Pathological nodal stage — no. (%)			
pN0: no axillary lymph nodes involved	890 (44.5)	888 (44.4)	1778 (44.4)
pN1a: 1–3 axillary lymph nodes involved	866 (43.3)	859 (42.9)	1725 (43.1)
pN2a: 4–9 axillary lymph nodes involved	201 (10.0)	195 (9.7)	396 (9.9)
pN3a: >9 axillary lymph nodes involved	44 (2.2)	59 (2.9)	103 (2.6)
Adjuvant treatment — no. (%)			
None	301 (15.0)	324 (16.2)	625 (15.6)
Chemotherapy	500 (25.0)	494 (24.7)	994 (24.8)
Hormonal therapy	599 (29.9)	586 (29.3)	1185 (29.6)
Both chemotherapy and hormonal therapy	602 (30.1)	598 (29.9)	1200 (30.0)

* The control group received whole-breast or thoracic-wall irradiation alone, as compared with the nodal-irradiation group, which received whole-breast or thoracic-wall irradiation in addition to regional nodal irradiation. There were no significant differences between the groups.

Poortmans PM, et al. N Engl J Med 2015

EORTC Çalışması

- Randomizasyon
  - Meme/GD RT ± **MI-Med. SKF**
- Ort. 10.9 yıl izlem
- **HS, UMS ↑**, GS için trend
- Meme Ca mortalitesi ↓
  - RR %2.7 vs. 4.2



Poortmans PM, et al. N Engl J Med 2015

Mastektomi Sonrası RT Endikasyonları

- >5 cm tm
- ≥4 LN metastazı
- Fasya-cilt tutulumu (T4)
- Cerrahi sınır (+)
- T
- Yüksek riskli N0

Mastektomi tipinden bağımsız
Rekonstrüksiyon varlığında da geçerli

ASCO Special Articles

CrossMark

gy (2016) 6, e219-e234

National Comprehensive Cancer Network®

NCCN Guidelines Version 3.2018
Invasive Breast Cancer

NCCN Guidelines Index
Table of Contents
Discussion

LOCOREGIONAL TREATMENT OF T1-3,N0-1,M0 DISEASE[1]

Diğer Risk Faktörleri (>1)

- <40 yaş
- Premenopozal
- Grad 3
- İnvaziv lobüler Ca
- LVI
- Yetersiz AD (<6)
- Pozitif LN oranı >%20
- ECE
- ER (-)
- Santral/medial tm

Rowell NP. Radiother Oncol 2009

SSM/NSM: PMRT (+) vs. (-)

- Randomize kontrollü çalışma yok
- **%10-30 PMRT (+)**
  - Ort. izlem 8-101 ay
  - **Lokal rekürrens %0-13.4**
- **Tartışmalı!**

ecancermedicalscience

Postoperative radiotherapy after nipple- or skin-sparing mastectomy: a review of recent institutional and pooled data

Jacques Bernier

Genolier Cancer Center, Clinique de Genolier, Genolier 1272, Switzerland

ecancer 2018, **12**:834

PMRT (+) vs. (-)

- NSM ve eş zamanlı rekons. (n=216)
  - NAC altında, 5 mm kalınlıkta ve 2 cm çapında **glandüler doku (+)**
- Ort. 13 yıl izlem
- RT ile **lokal-bölgesel rekürrens** ↓
  - %8.5 vs. %28.4, p=0.025

- *Yüksek riskli hastalar fazla: >3 cm tm, LN+ (%40)*

Benediktsson KP, et al. Eur J Surg Oncol 2008

SSM/NSM: Kime RT?

- **Gerçek Mastektomi?**
- **Meme Koruyucu Cerrahi?**

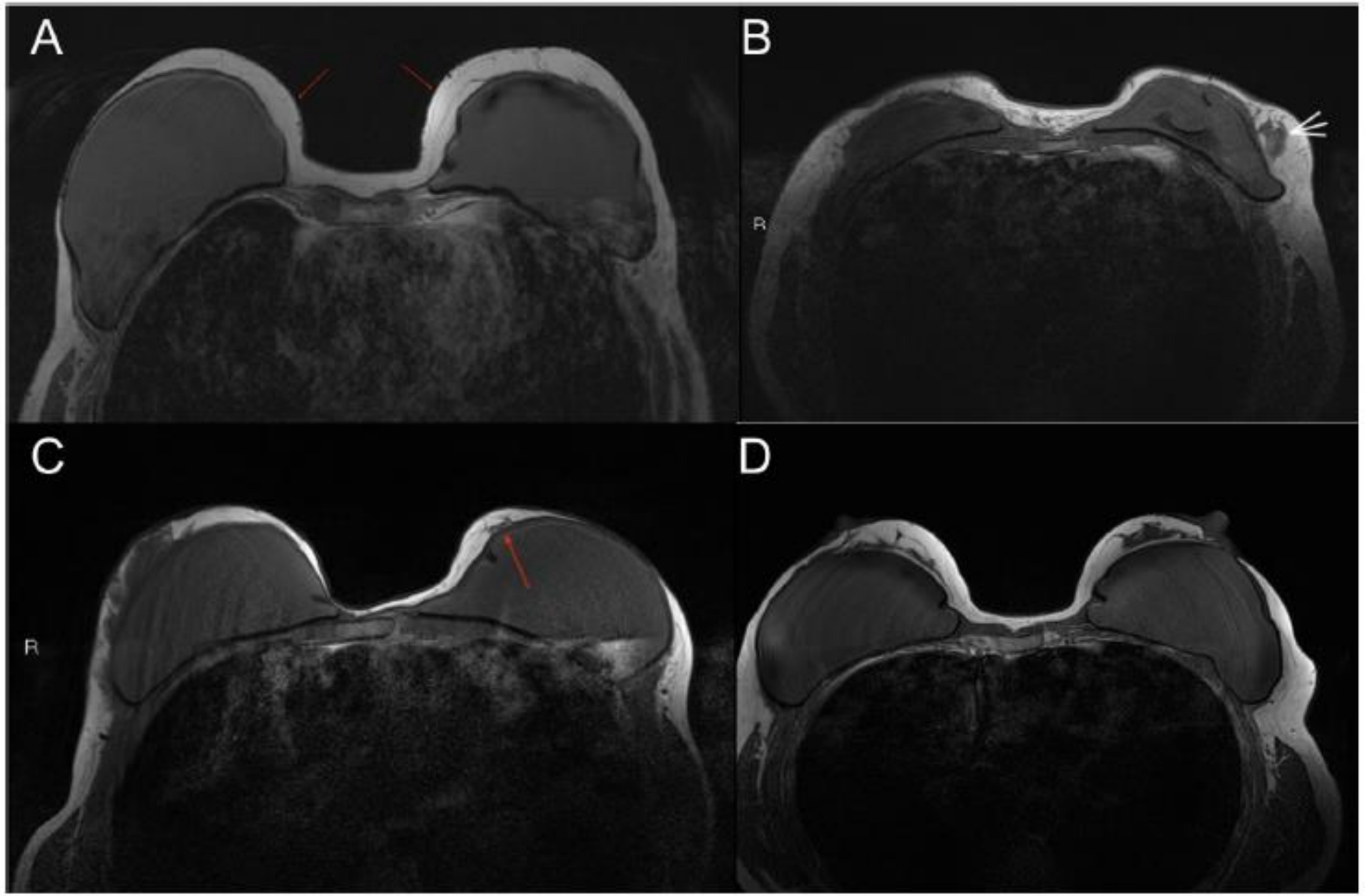
Rezidü meme dokusu: : LR riski ↑

Rezidü Meme Dokusu

- n=42
- Evre 0-IIIA
- SSM → Konvansiyonel mastektomi
- Cerrahi spesimenlerin **%60**'ında rezidü meme dokusu
- Rezidü meme d. ve cilt flep kalınlığı arasında direkt ilişki (+)
  - **>5 mm** ise **%9.5 tm hücresi (+)**

Torresan RZ, et al. Ann Surg Oncol 2015

International Journal of
Radiation Oncology



- Tera
  - T
  - S
  - I

esence of residual oglandular tissue (%)
1.4
1.0
4.6
5.8
12.6
10.2
6.8
11.4
6.8
65.7
6.4

, pp. 82–91, 2018

Klinik Pratik

PLOS ONE

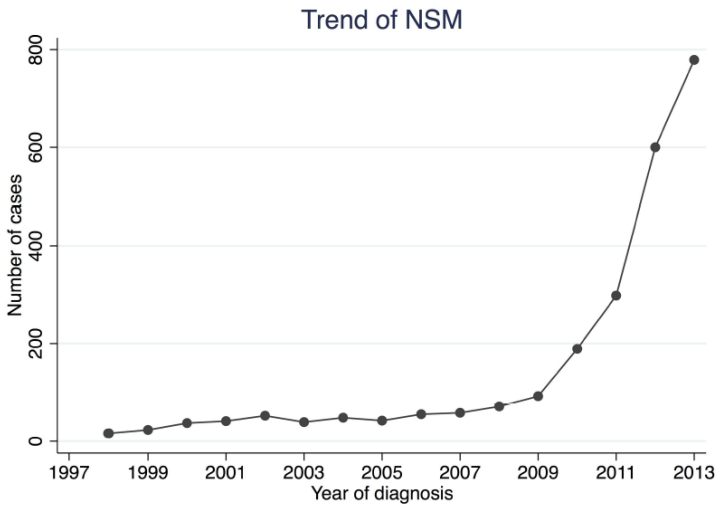
RESEARCH ARTICLE

Nipple sparing mastectomy in breast cancer patients and long-term survival outcomes: An analysis of the SEER database

Mingzhu Li[1☯], Kai Chen[2,3☯], Fengtao Liu[2,3☯], Fengxi Su[2,3], Shunrong Li[2,3*], Liling Zhu[2,3,4☯*]

1 Quanzhou First Hospital Affiliated to Fujian Medical University, Quanzhou, Fujian, China, 2 Guangdong Provincial Key Laboratory of Malignant Tumor Epigenetics and Gene Regulation, Sun Yat-Sen Memorial Hospital, Sun Yat-Sen University, Guangzhou, Guangdong, China, 3 Breast Tumor Center, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, Guangzhou, Guangdong, China, 4 Department of Biostatistics, Yale School of Public Health, Yale University, New Haven, Connecticut, United States of America

- SEER (1998-2013), **NSM**, n=2440
- PMRT endikasyonlarına göre RT uygulanan olgular:
  - RT önerilmeli (N2-3): %61.4
  - RT önerilebilir (N1 ya da T3/N0): %39.6
  - **RT önerilmemeli** (Tis/T1-2N0): **%10.9**



The Breast Journal

ORIGINAL ARTICLE

Postoperative Radiation Therapy after Nipple-Sparing or Skin-Sparing Mastectomy: A Survey of European, North American, and South American Practices

Gustavo Nader Marta, MD, PhD,* Philip M. Poortmans, MD, PhD,† Thomas A. Buchholz, MD,‡ and Tarek Hijal, MD§

The Breast Journal, Volume 23 Number 1, 2017 26–33

Available online at www.sciencedirect.com

ScienceDirect

EJSO 43 (2017) 2036–2043

EJSO the Journal of Cancer Surgery

www.ejso.com

Multidisciplinary international survey of post-operative radiation therapy practices after nipple-sparing or skin-sparing mastectomy

Gustavo Nader Marta [a,*], Philip Poortmans [b], Alfredo C. de Barros [c], José Roberto Filassi [d], Ruffo Freitas Junior [e], Riccardo A. Audisio [f], Max Senna Mano [g], Sarkis Meterissian [h], Sarah M. DeSnyder [i], Thomas A. Buchholz [i], Tarek Hijal [j]

- NSM ve SSM sonrası PMRT
- 22 soruluk anket
- 550 klinisyen
  - 298 radyasyon onkoloğu
  - 252 meme cerrahı
  - **NSM ve SSM oranı %30**

Available online at www.sciencedirect.com
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EJSO 43 (2017) 2036–2043
EJSO the Journal of Cancer Surgery
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Multidisciplinary international survey of post-operative radiation therapy practices after nipple-sparing or skin-sparing mastectomy

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Table 2
Current practice of skin-sparing mastectomy and nipple-sparing mastectomy.

Questions	Radiation oncologist		Breast surgeon		P value
	n	%	n	%	
Post-mastectomy radiation is indicated for early-stage (stages I and II) breast cancer patients who undergo skin-sparing mastectomy:					<0.001
Always	21	7.0	6	2.4	
I don't know	8	2.7	2	0.8	
In the presence of risk for recurrence	260	87.2	213	84.5	
Never	9	3.0	31	12.3	
Post-mastectomy radiation is indicated for early-stage (stages I and II) breast cancer patients who undergo nipple-sparing mastectomy:					<0.001
Always	43	14.4	16	6.3	
I don't know	9	3.0	7	2.8	
In the presence of risk for recurrence	239	80.2	205	81.3	
Never	7	2.3	24	9.5	
In your practice, how often is radiation therapy contraindicated due to possible technical difficulties and/or a high risk of toxicities related to breast reconstruction after skin-sparing mastectomy/ nipple-sparing mastectomy?					<0.001
Never	72	24.2	68	27.0	
Rarely	187	62.8	123	48.8	
Sometimes	34	11.4	40	15.9	
Often	3	1.0	14	5.6	
Very often	2	0.7	7	2.8	

- **Risk Faktörleri:**
  - Nodal tutulum (1 vs. >3)
  - LVI
  - Grad 3 hastalık
  - Triple negatif histoloji
  - Genç yaş (<40 yaş)
  - ***Pozitif cerrahi sınır***
  - ***Tm boyutu (>5 cm)***
  - ***ECE***
  - ***Multisentrik hastalık***

Available online at www.sciencedirect.com
ScienceDirect
EJSO 43 (2017) 2036–2043
EJSO the Journal of Cancer Surgery
www.ejso.com

Multidisciplinary international survey of post-operative radiation therapy practices after nipple-sparing or skin-sparing mastectomy

Gustavo Nader Marta [a,*], Philip Poortmans [b], Alfredo C. de Barros [c], José Roberto Filassi [d], Ruffo Freitas Junior [e], Riccardo A. Audisio [f], Max Senna Mano [g], Sarkis Meterissian [h], Sarah M. DeSnyder [i], Thomas A. Buchholz [i], Tarek Hijal [j]

- **SSM/NSM sonrası rezidü meme d.'u:**
  - Cut-off?
  - Gerekliliği ve nasıl değerlendirileceği açısından uyum ↓
  - Cilt flep kalınlığı **MRG** ile net değerlendirilebilir

Table 5
Breast tissue evaluating.

Questions	Radiation oncologist		Breast surgeon		P value
	n	%	n	%	
After skin-sparing mastectomy/nipple-sparing mastectomy, residual breast tissue can be left behind. What amount of residual tissue do you consider as acceptable in the context of an oncologic surgery?					<0,001
1 mm – 5 mm	85	28,5	138	54,8	
6 mm – 10 mm	32	10,7	53	21,0	
11 mm – 20 mm	13	4,4	5	2,0	
> 20 mm	6	2,0	0	0,0	
None of the above	56	18,8	51	20,2	
I don't know	106	35,6	5	2,0	
Do you consider it important to evaluate the residual breast tissue after skin-sparing mastectomy/nipple-sparing					<0.001
Not important	47	15,8	99	39,3	
Somewhat important	73	24,5	56	22,2	
Important	70	23,5	57	22,6	
Very important	50	16,8	30	11,9	
I don't know	58	19,5	10	4,0	
In your practice, how often do you request breast imaging to evaluate the residual breast tissue after skin-sparing mastectomy/ nipple-sparing mastectomy (consider patients who underwent skin-sparing mastectomy/nipple-sparing mastectomy only)?					0.57
Never	88	29,5	79	31,3	
Rarely	104	34,9	72	28,6	
Sometimes	58	19,5	40	15,9	
Often	35	11,7	37	14,7	
Very often	13	4,4	24	9,5	
Which breast imaging modality do you consider more adequate to evaluate the residual breast tissue status after skin-sparing mastectomy/nipple-sparing mastectomy (select all that apply)?[a]					
Ultrasonography	82	20,6	92	26,4	0.024
Mammography	55	13,8	73	21,0	0.04
Magnetic resonance imaging	206	51,8	151	43,4	0.15
Computed tomography	19	4,8	3	0,9	<0.001
None of the above	36	9,0	29	8,3	<0.001

SSM/NSM ve RT: Komplikasyonlar

SSM/NSM ve RT

- SSM ve NSM sıklıkla ‘’**rekonstrüksiyon**’’ ile birlikte yapılır
  - Kalıcı implant
  - Doku genişletici (TE) ve 2-aşamalı rekonstr.
  - Otolog doku-bazlı rekonstr.

- **Komplikasyonlar ↑** ve **QOL ↓**, ancak kabul edilebilir

Ascherman JA, et al. Plast Reconstr Surg 2006
Eriksson M, et al. Breast Cancer Res Treat 2013

SSM/NSM ve RT

- Enfeksiyon
- Cilt/NAC nekrozu
- Nipple kaybı
- Kapsüler kontraktür
- İmplant kaybı
- 2. cerrahi gerekliliği

Ascherman JA, et al. Plast Reconstr Surg 2006
Eriksson M, et al. Breast Cancer Res Treat 2013

Komplikasyonlar İle İlişkili Faktörler

- Hastaya bağlı faktörler
- Cerrahi insizyon şekli
- Rekonstr. tipi
- Rekonstr. zamanlaması
- RT tekniği (Bolus/Boost)

Peled AW, et al. Ann Plast Surg 2018

Rekonstrüksiyon Tipi

- **İmplant-bazlı**
  - İmplant sonrası **PMRT** ile komplikasyonlar x2-3↑
    - Kapsül kontraktürü ve rekonstr. başarısızlığı (%20)

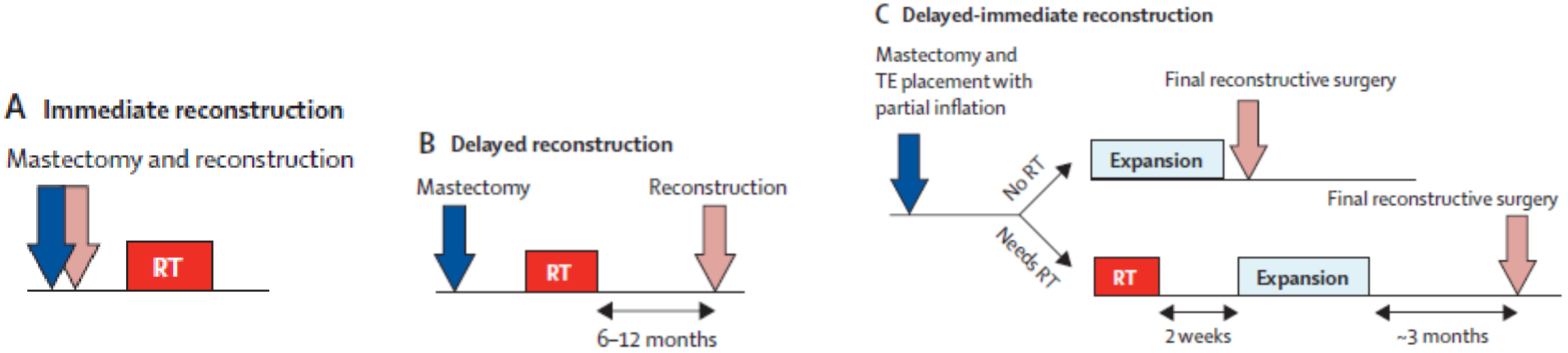
- **Otolog doku-bazlı**
  - **''Altın standart''** ancak ciddi tecrübe gerekli!!!
  - İmplanta göre daha az kompl.
  - **PMRT** ile kompl. ↑**, tercihen RT sonrası**

- *Hasta bazında karar verilmeli*

Momoh AO, et al. Ann Surg Oncol 2014
Fowble BPC, et al. IJROBP 2015
Jagsi R, et al. J Natl Cancer 2018

Rekonstrüksiyon Zamanlaması

- Eş zamanlı
- Gecikmiş
- Gecikmiş-Eş zamanlı Rekonstrüksiyon



Ho AY, et al. Lancet Oncol 2017

Ann Surg Oncol (2015) 22:3331–3337
DOI 10.1245/s10434-015-4669-y

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

CrossMark

ORIGINAL ARTICLE – BREAST ONCOLOGY

Nipple-Sparing Mastectomy in Irradiated Breasts: Selecting Patients to Minimize Complications

Rong Tang, MD[1,2], Suzanne B. Coopey, MD[1], Amy S. Colwell, MD[3], Michelle C. Specht, MD[1], Michele A. Gadd, MD[1], Kari Kansal, MD[1], Maureen P. McEvoy, MD[1], Andrea L. Merrill, MD[1], Upahvan Rai, MD[1], Alphonse Taghian, MD, PhD[4], William G. Austen, MD[3], and Barbara L. Smith, MD, PhD[1]

[1]Division of Surgical Oncology, Gillette Center for Women's Cancers, Massachusetts General Hospital, Boston, MA; [2]Division of Breast Surgery, Hunan Cancer Hospital, The Affiliated Tumor Hospital of Xiangya Medical School of Central South University, Changsha, China; [3]Division of Plastic Surgery, Massachusetts General Hospital, Boston, MA; [4]Department of Radiation Oncology, Massachusetts General Hospital, Boston, MA

- n=982
- NSM ve eş zamanlı rekonstrüksiyon (%25 TE/%70 implant)
- Ort. izlem 23 ay
- **RT ile;**
  - Komplikasyonlar ↑
  - Cilt nekrozu ↑
  - Nipple kaybı ↑

TABLE 2 Surgical complications of nipple-sparing mastectomy with and without radiotherapy

	Cohort 1, no RT ($n = 816$)	Cohort 2, prior RT ($n = 69$)	Cohort 3, PMRT ($n = 97$)	p values for cohort comparison		
				1:2	1:3	2:3
Overall unplanned surgery	184 (22.5 %)	23 (33.3 %)	22 (22.7 %)	0.04*	1.00	0.13
Cosmetic revision	112 (13.7 %)	12 (17.4 %)	8 (8.2 %)	0.40	0.13	0.07
Overall complications	83 (10.2 %)	15 (21.7 %)	17 (17.5 %)	0.003*	0.03*	0.50
Early complications[a]	58 (7.1 %)	13 (18.8 %)	10 (10.3 %)	<0.001*	0.26	0.12
Late complications[b]	28 (3.4 %)	2 (2.9 %)	7 (7.2 %)	1.00	0.06	0.31
Overall skin necrosis	37 (4.5 %)	8 (11.6 %)	10 (10.3 %)	0.02*	0.02*	0.79
Breast skin necrosis	20 (2.4 %)	5 (7.2 %)	7 (7.2 %)	0.04*	0.02*	1.00
Nipple/areola necrosis[c]	18 (2.2 %)	5 (7.2 %)	4 (4.1 %)	0.03*	0.29	0.49
Nipple loss	7 (0.9 %)	3 (4.3 %)	4 (4.1 %)	0.04*	0.02*	1.00
Reconstruction failure	18 (2.2 %)	2 (2.9 %)	8 (8.2 %)	0.47	0.003*	0.19

Ann Surg Oncol (2015) 22:3331–3337
DOI 10.1245/s10434-015-4669-y

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Nipple-Sparing Mastectomy in Irradiated Breasts: Selecting Patients to Minimize Complications

Rong Tang, MD[1,2], Suzanne B. Coopey, MD[1], Amy S. Colwell, MD[3], Michelle C. Specht, MD[1], Michele A. Gadd, MD[1], Kari Kansal, MD[1], Maureen P. McEvoy, MD[1], Andrea L. Merrill, MD[1], Upahvan Rai, MD[1], Alphonse Taghian, MD, PhD[4], William G. Austen, MD[3], and Barbara L. Smith, MD, PhD[1]

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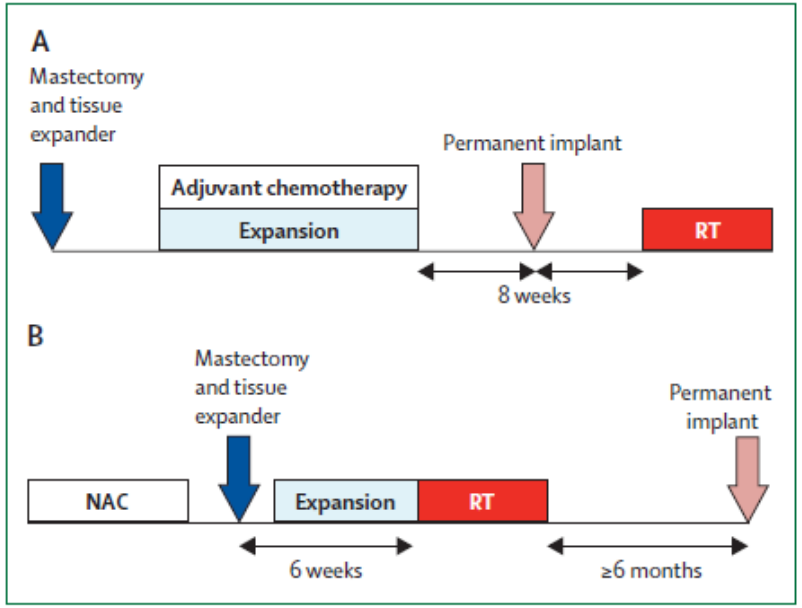
- Çok değişkenli analiz:
  - Önceki RT (OR, 2.53, *p*= 0.006)
  - PMRT (OR, 2.29, *p*= 0.015)
  - Yaş >55 yıl (OR, 2.03, *p*=0.04)
  - Meme hacmi ≥800 cm^3 (OR, 1.96, *p*=0.04)
  - Sigara (OR, 2.62, *p*=0.001)
  - Peri-areolar insizyon (OR, 1.74, *p*=0.03)

TABLE 4 Number of risk factors and complication rates in all breasts and in irradiated breasts

No. of risk factors	0	1	2	≥3	*p*
No. of breasts ($N = 982$)	471	368	118	25	
No. of breasts with complication	33 (7.0 %)	50 (13.6 %)	22 (18.6 %)	11 (44 %)	<0.001
RT with no. of risk factors	RT only	RT + 1	RT + 2	RT + ≥ 3	*p*
Breasts with RT ($n = 166$)	82	63	18	3	
No. of breasts with complications	11 (13.4 %)	11 (17.5 %)	9 (50 %)	2 (66.7 %)	<0.001

Expander-İmplant Rekonstrüksiyon

- PMRT gereken hastalarda uygulanan en sık yöntem
- Onkolojik açıdan güvenli
- Kalıcı implant zamanlaması tartışmalı
  - **RT sonrası en az 6 ay beklenmeli!**
  - Rekonstr. başarısızlığı %22.4 vs. %7.7, p=0.036
- Expander sonrası PMRT ile kompl.↑ ancak kozmetik sonuçlar daha iyi



Ho A, et al. Cancer 2012
Peled AW, et al. Plast Reconstr Surg 2012
Cordeiro PG, et al. Plast Reconstr Surg 2016

Ann Surg Oncol (2017) 24:1262–1268
DOI 10.1245/s10434-017-5819-1

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ORIGINAL ARTICLE – RADIATION ONCOLOGY

Optimal Sequencing of Postmastectomy Radiotherapy and Two Stages of Prosthetic Reconstruction: A Meta-analysis

Kyeong-Tae Lee, MD and Goo-Hyun Mun, MD, PhD

Department of Plastic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

- 8 çalışma
- Prosp. randomize çalışma yok
- İki aşamalı protez ile rekonstr. yapılan olgular (n=899)
- PMRT zamanlaması:
  - Doku genişletici ile RT (n=489)
  - Kalıcı implant ile RT (n=410)

Ann Surg Oncol (2017) 24:1262–1268
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- **Ciddi kapsüler kontraktür implant ile ↑**

TABLE 3 Pooled RRs for adverse outcomes between group receiving PMRT on tissue expander and implant

Outcome	No. of studies	No. of cases		RR	95% CI	*P*
		RT on TE	RT on implant			
Reconstruction failure	8	489	410	1.72	0.81–3.64	0.16
Infection	4	169	67	1.65	0.72–3.78	0.23
Severe capsular contracture	4	219	352	0.44	0.29–0.68	<0.001
Major complication	3	135	45	3.29	0.76–14.25	0.11
Minor complication	3	135	45	0.94	0.53–1.69	0.84

RT: NAC Nekrozu?

- 7/17 çalışmada RT detayı (+)
- PMRT: >5 cm, ≥4 LN+, CS ≤1 mm, rezidü meme d. (+)
- Sıklıkla 50 Gy

- **NAC nekrozu** %0-10 (ort. **%4.4)**
- RT ile komplikasyonlar artmaz
- Kozmetik açıdan fark yok

ONCOLOGY LETTERS 9: 2435-2441, 2015

Nipple-sparing mastectomy in breast cancer patients: The role of adjuvant radiotherapy (Review)

STEFAN JANSSEN[1,2], EDNA HOLZ-SAPRA[3], DIRK RADES[2], ALEXANDER MOSER[4] and GABRIELA STUDER[3]

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Radiol med (2017) 122:171–178
DOI 10.1007/s11547-016-0702-x

BREAST RADIOLOGY

Radiotherapy and nipple–areolar complex necrosis after nipple-sparing mastectomy: a systematic review and meta-analysis

Yajuan Zheng[1] · Miaochun Zhong[1] · Chao Ni[1] · Hongjun Yuan[1] · Jingxia Zhang[1]

- 2 prosp., 5 retrosp. çalışma
- RT (+) vs. (-)
- NAC nekrozu ve LR benzer
- **Cilt flep nekrozu ↑**
  - OR = 2.534, %95 CI 1.720–3.735, $P < 0.001$

RT Tekniği

- **RT alanı:**
  - Rekonstr. bölgesi ve GD ± bölgesel lenfatikler
  - T1-T2N0: Yalnız NAC kompleksi???

- **IORT**

Düşük risk faktörleri olan erken evre olgularda çalışma kapsamında!!!

  - Tüm rekürrensler NAC bölgesinden uzakta

Petit JY, et al. Tumori 2003
NCCN Guideline, Breast Cancer, 2018

RT Tekniği

- Eski çalışmalar:
  - Rekonstr. optimal RT uygulanmasını güçleştirir
- Yeni çalışmalar:
  - Modern RT teknikleri ile fark yok
  - Rekonstr. değil ancak MI alanı tedaviyi güçleştirir

Motwani SB, et al. Int J Radiat Oncol Biol Phys 2006
Ohri N, IJROBP et al. 2012
Chung E, et al. Med Dosim 2013

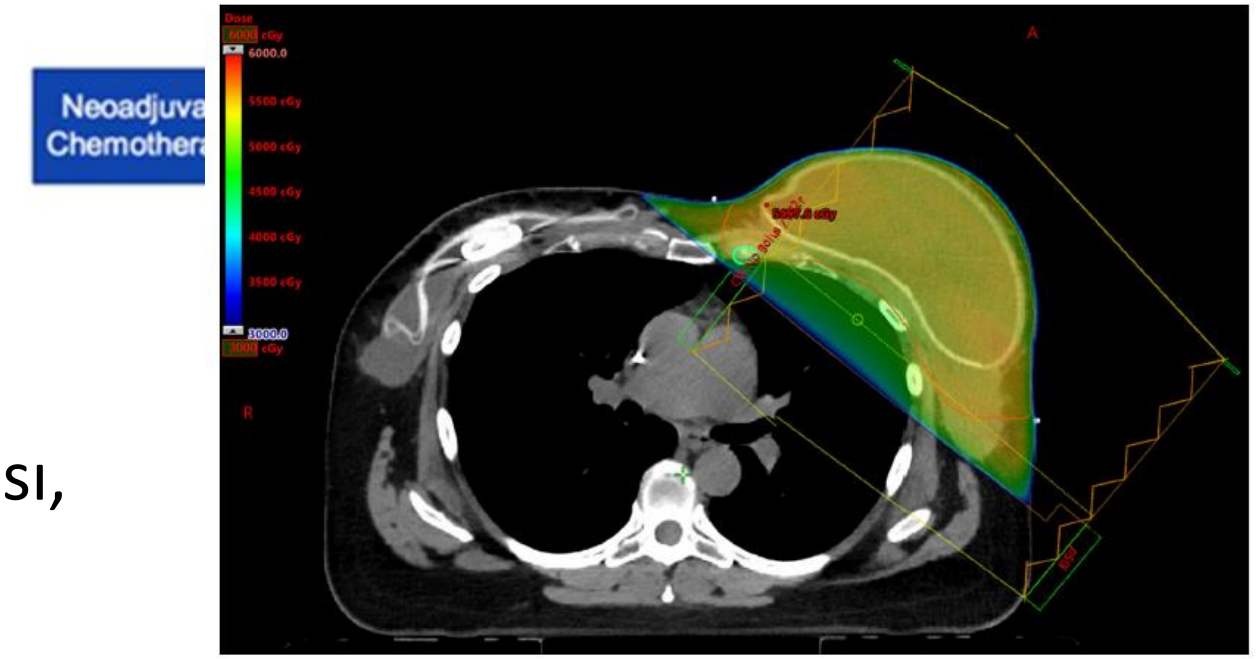
Breast Cancer Res Treat (2017) 164:237–244
DOI 10.1007/s10549-017-4241-5

BRIEF REPORT

Immediate tissue expander or implant-based breast reconstruction does not compromise the oncologic delivery of post-mastectomy radiotherapy (PMRT)

Krishan R. Jethwa[1] · Mohamed M. Kahila[1] · Thomas J. Whitaker[1] · William S. Harmsen[2] · Kimberly S. Corbin[1] · Sean S. Park[1] · Elizabeth S. Yan[1] · Valerie Lemaine[4] · Judy C. Boughey[3] · Robert W. Mutter[1]

- n=116
- Rekonstr. plan (n=50, TE/I)
- Non-rekonstr. plan (n=66)
- Modern RT tekniği (50 Gy)
- RT başlangıcı, hedef kapsanması, AC ve kalp dozları **fark yok**



RT Tekniği

- Retrospektif çalışmalar
- Konsensus yok
  - **Expander hacmi**
  - **IMRT kullanımı**
  - **Boost rolü**
  - **Bolus kullanımı**

- *Hasta bazında karar verilmeli*

European Journal of Surgical Oncology 44 (2018) 436–443

Contents lists available at ScienceDirect

European Journal of Surgical Oncology

journal homepage: www.ejso.com

The Assisi Think Tank Meeting and Survey of post MAstectomy Radiation Therapy after breast reconstruction: The ATTM-SMART report

Cynthia Aristei [a, *], Orit Kaidar-Person [b], Luca Tagliaferri [c], Meritxell Arenas [d], Charlotte E. Coles [e], Birgitte V. Offersen [f], Giovanni Frezza [g], Maria Cristina Leonardi [h], Vincenzo Valentini [c], Céline Bourgier [i], Philip M.P. Poortmans [j]

- Meme rekonstr. ve PMRT
- 21 soruluk anket
- ESTRO: 19 ülke (n=283)
- %61.8 TE ile eş zamanlı rekonstr. - RT - kalıcı implant

Q4. In candidates for mastectomy and possible immediate or delayed reconstruction, is the radiation oncologist in your institution consulted on the timing and type of reconstructive surgery?	**Responders (number)**	**Responders (%)**
Yes, in most cases	168	59.4%
Rarely	63	22.3%
No, patients are presented only after surgery	52	18.4%
Q5. In your opinion, who most often influences reconstruction timing (immediate vs delayed)?	**Responders (number)**	**Responders (%)**
The breast/plastic surgeon	219	77.4%
The patient	14	4.9%
The radiation oncologist	24	8.5%
The medical oncologist	2	0.7%
Multidisciplinary discussion	23	8.1%
Availability to treatment	1	0.35%

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- **IMRT**
  - Doz hedefleri sağlanmıyor/BNI+ (%42)
- **Boost**
  - %48.4 yakın/+ CS
  - %17.7 yüksek risk faktörleri (T3-T4, LVI)
  - **%68.5 SSM/NSM sonrası boost (-)** (CS+, cilt tutulumu hariç)
- **Bolus**
  - %64 kullanmıyor
  - Cilt tutulumu varsa (+)

Devam Eden Çalışma

- Faz III randomize çalışma (A221505)
- Evre IIa-IIIa
- Eş zamanlı rekonstrüksiyon sonrası:
  - **Hipofraksiyone RT**
    - 16 frk/42.56 Gy
  - **Standart RT**
    - 2 Gy/50 Gy

Study Design

Study Type :	Interventional (Clinical Trial)
Estimated Enrollment :	880 participants
Allocation:	Randomized
Intervention Model:	Parallel Assignment
Masking:	None (Open Label)
Primary Purpose:	Supportive Care
Official Title:	RT CHARM: Phase III Randomized Trial of Hypofractionated Post Mastectomy Radiation With Breast Reconstruction
Actual Study Start Date :	February 1, 2018
Estimated Primary Completion Date :	October 2021
Estimated Study Completion Date :	August 2035

Hacettepe-Başkent Deneyimi

- SSM ve implant-bazlı rekonstr.
- n=107
- %14 GD, %86 GD+BNI
- %46 IMRT
- %64 bolus (+)

- Ort. izlem 2 yıl
- Geç kompl. %13, kontraktür %10, 2. cerrahi %15
- Kozmetik: %75 mükemmel, %13 orta, %12 kötü
- Bolus (+): Kozmetik sonuçlar ↓

2116

Radiation Therapy Outcomes After Skin-Sparing Mastectomy and Implant-Based Breast Reconstruction

S. Yuce Sari,[1] A. Kotek,[2] M. Gultekin,[3] B. Akkus Yildirim,[2] C. Onal,[2] G. Ozyigit,[3] M. Gurkaynak,[3] and F. Yildiz[3]; [1]*Ankara Ataturk Chest Diseases and Chest Surgery Training and Research Hospital, ANKARA, Turkey,* [2]*Baskent University Faculty of Medicine, Department of Radiation Oncology, Adana, Turkey,* [3]*Hacettepe University Medical School, Ankara, Turkey*

Purpose/Objective(s): To evaluate the long-term cosmetic results and complications, and to determine the prognostic factors for cosmetic satisfaction in patients who received radiation therapy (RT) following skin-sparing mastectomy (SSM) and implant-based reconstruction.

Materials/Methods: One hundred and seven breast cancer patients treated with adjuvant RT following SSM and implant-based reconstruction between November 2007 and May 2015. Median age was 41 years (range, 28-65 years). Axillary lymph node (LN) dissection was performed in 86 patients (80%) whereas sentinel LN sampling was performed in 21 patients (20%). Nine patients (8%) received neoadjuvant, and 98 patients (92%) received adjuvant chemotherapy. All patients were treated with SSM including excision of the nipple-areola complex. The type of implant was a silicone in 101 (94%) and a permanent expander in 6 (6%) patients. Fifteen (14%) patients received RT to reconstructed breast (RB) only encompassing the thoracic wall and skin since they had either tumors ≥5 cm or fascial involvement without LN metastasis. The remaining 92 (86%) patients were treated with RB and lymphatic irradiation. RT was delivered in 25 fractions to a total dose of 50 Gy. Three (3%) patients received 2-dimentional RT, 55 (51%) patients received forward planning intensity modulated radiation therapy (IMRT), and 49 (46%) patients received inverse planning IMRT. Sixty-eight patients (64%) were treated with daily 0.5 cm bolus throughout treatment.

ASTRO's 2016 Annual Meeting

Sonuç-1

- **SSM/NSM: Standart PMRT endikasyonları geçerli**
  - **>5 cm**
  - **LN+**
  - **CS pozitif**

  - *Triple negatif*
  - *>5 mm cilt flebi*
  - *<5 mm cilt flebi ve yüksek risk faktörleri (<50 yaş, ECE+, LVI, multisentrik tm)*

Sonuç-2

- **Erken evre (T1-2N0)**
  - Rezidü meme dokusu (-): İzlem
  - **Rezidü meme dokusu** (+): IORT/Lokal RT

- **İleri evre (T3N+)**
  - Rezidü meme dokusu (-)/(+)**:** GD ± Lenfatik RT

Sonuç-3

- **SSM/NSM, rekonstr. ve PMRT:**
  - ***Tecrübeli ekip***
  - ***Multidisipliner değerlendirme***

  - *Doğru hasta seçimi*
  - *Doğru zamanlama*
  - *Doğru teknik*

MUTLU YILLAR…