XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Marina Guenzi

Genova

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

"Medicine is a science of uncertainty and an art of probability"

Sir William Osler

Brief Report

Reporting of Uncertainty at the 2013 Annual Meeting of the American Society for Radiation Oncology

W. Robert Lee, MD, MS, MEd

William Osler (Bond head, 12 luglio 1849 – Oxford, 29 dicembre 1919) medico canadese, definito come il padre della medicina moderna. Patologo, educatore, grande bibliofilo, storico e scrittore, Osler è stato anche un rinomato burlone

Indicazioni,
Dosi
Volumi Clinici…
nel trattamento dei tumori mammari

Eterogeneità delle presentazioni

- Caratteristiche delle pazienti
- Estensione della malattia (TNM)
- Caratteristiche biologiche della malattia
- Trattamento chirurgico
- Trattamento sistemico

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Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early

CARCINOMA INVASIVO

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Neoplsia Mammaria Early

CARCINOMA INVASIVO

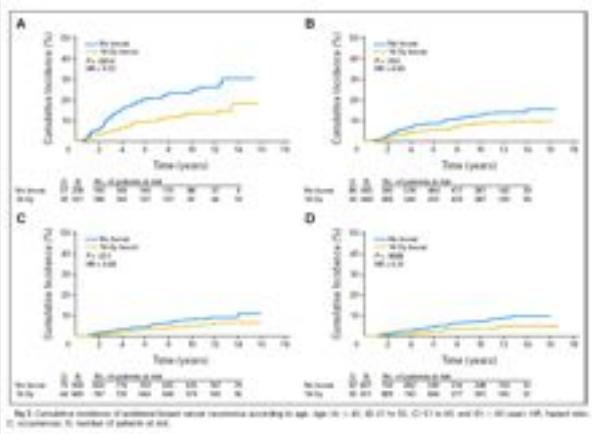
Circa l'80% delle pazienti con neoplasia mammaria infiltrante è suscettibile di un trattamento conservativo che, in studi randomizzati, è risultato equivalente alla mastectomia **(categoria di evidenza 1 del NCCN).**

La **RT** postoperatoria **riduce il rischio relativo di recidiva omolaterale** di circa il 75% rispetto alla sola chirurgia, **impatta sulla sopravvivenza globale** e, pertanto, deve essere considerata **parte integrante del trattamento conservativo.**

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Dopo chirurgia conservativa il trattamento standard prevede la somministrazione di 50,0-50,4 Gy (1,8-2 Gy/die, in 5 frazioni settimanali).

Poiché la maggior parte delle recidive locali è documentata in corrispondenza o nelle immediate vicinanze del letto tumorale, al fine di ridurne l'incidenza, l'erogazione di un sovradosaggio al letto operatorio (boost) è pratica routinaria presso la maggior parte dei centri di radioterapia



JOURNAL OF CLINICAL ONCOLOGY 2007

dosi totali al letto operatorio (irradiazione del corpo mammario e sovradosaggio) di 60,0 Gy in caso di margini di resezione istologicamente negativi.

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Pado

Margini di resezione

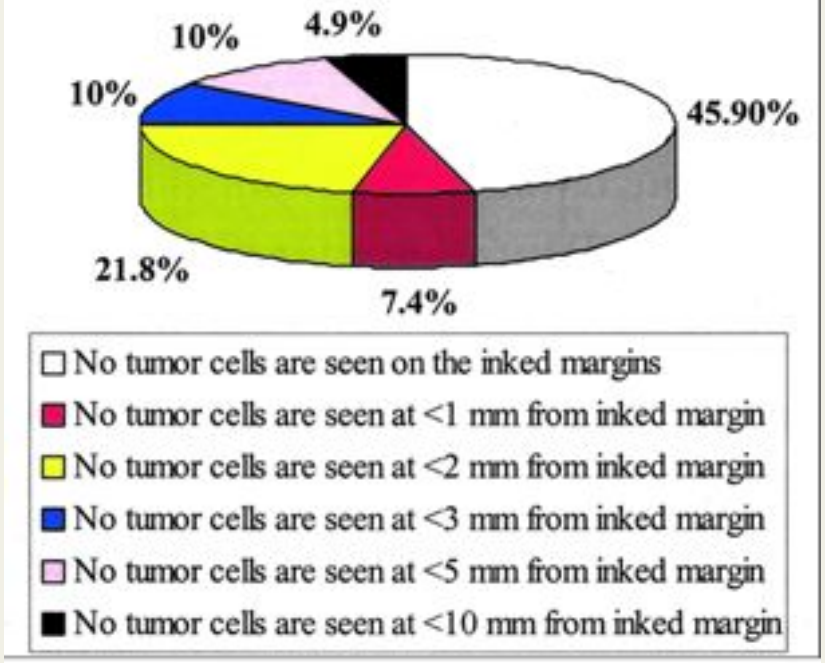
Annals of Surgery • Volume 241, Number 4, April 2005

Current Perceptions Regarding Surgical Margin Status After Breast-Conserving Therapy

Results of a Survey

Alphonse Taghian, MD, PhD, Majid Mohiuddin, MD, Reshma Jagsi, MD, DPhil, Saveli Goldberg, PhD, Elizabeth Ceilley, MD, and Simon Powell, MD, PhD

How do you define negative margins after local excision?: North America



Ann Surg Oncol. 2010 February ; 17(2): 558–563.

What is an Adequate Margin for Breast-Conserving Surgery? Surgeon Attitudes and Correlates

Michelle Azu[1], **Paul Abrahamse**[2], **Steven J. Katz**[2], **Reshman Jagsi**[3], and **Monica Morrow**[1]
[1]Breast Service, Department of Surgery, Memorial Sloan-Kettering Cancer Center, New York,
[2]Department of Internal Medicine, University of Michigan, Ann Arbor, MI
[3]Department of Radiation Oncology, University of Michigan, Ann Arbor, MI

318 respondent surgeons
mean age→51.9 years,
mean number of years in practice→ 18.5
female→ 17.8% of surgeons

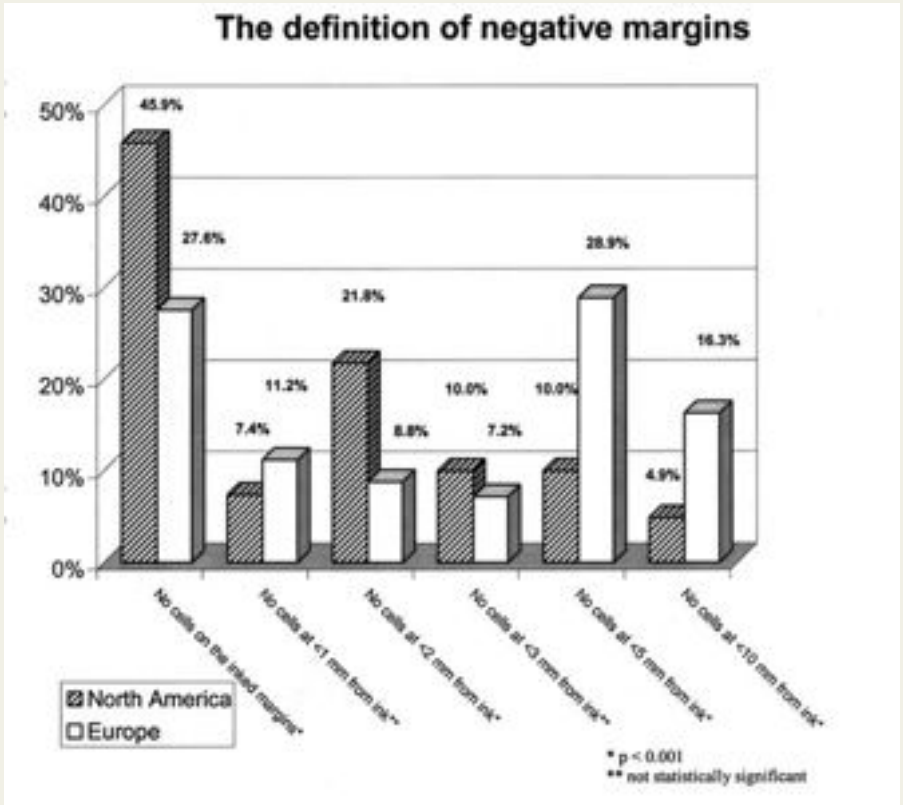
11% margins of tumor not touching ink
42% of 1–2mm,
28% of ≥5mm,
19% >1cm as precluding re-excision.

Current Perceptions Regarding Surgical Margin Status After Breast-Conserving Therapy

Results of a Survey

Alphonse Taghian, MD, PhD, Majid Mohiuddin, MD, Reshma Jagsi, MD, DPhil, Saveli Goldberg, PhD, Elizabeth Ceilley, MD, and Simon Powell, MD, PhD

Annals of Surgery • Volume 241, Number 4, April 2005



Similar variation in the definition of a negative margin has been observed among North American (702) and European (431) **radiation oncologists**

Int J Radiation Oncol Biol Phys, Vol. 88, No. 3, pp. 553–564, 2014

Society of Surgical Oncology–American Society for Radiation Oncology Consensus Guideline on Margins for Breast-Conserving Surgery With Whole-Breast Irradiation in Stages I and II Invasive Breast Cancer

Table 2 Expert panel members

Panel Member	Society	University/Institution
Monica Morrow, MD (co-chair)	SSO	Memorial Sloan-Kettering Cancer Center
Meena S. Moran, MD (co-chair)	ASTRO	Yale University
Nehmat Houssami, MD, PhD (systematic review methods)	School of Public Health	University of Sydney
Suzanne Klimberg, MD	ASBS	University of Arkansas
Mariana Chavez MacGregor, MD	ASCO	University of Texas MD Anderson Cancer Center
Jay Harris, MD	ASTRO	Harvard Medical School
Janet Horton, MD	ASTRO	Duke University
Gary Freedman, MD	ASTRO	University of Pennsylvania
Stuart Schnitt, MD	CAP	Harvard Medical School
Peggy Johnson	Patient Advocate	Advocate in Science, Susan G. Komen
Armando Giuliano, MD	SSO	Cedars Sinai Medical Center
Seema A. Khan, MD	SSO	Northwestern University

Abbreviations: ASBS = American Society of Breast Surgeons; ASCO = American Society of Clinical Oncology; ASTRO = American Society for Radiation Oncology; CAP = College of American Pathologists; SSO = Society of Surgical Oncology.

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Summary of clinical practice guideline recommendations

Positive margins, defined as ink on invasive cancer or DCIS, are associated with at least a 2-fold increase in IBTR. This increased risk in IBTR is not nullified by: delivery of a boost, delivery of systemic therapy (endocrine therapy, chemotherapy, biologic therapy), or favorable biology.

Negative margins (no ink on tumor) optimize IBTR. Wider margins widths do not significantly lower this risk. The routine practice to obtain wider negative margin widths than ink on tumor is not indicated.

La **pietra miliare** è un cippo iscritto sul ciglio stradale per **scandire, misurare le distanze** lungo le vie pubbliche romane

VOLUME 32 · NUMBER 14 · MAY 10 2014

JOURNAL OF CLINICAL ONCOLOGY

ASCO SPECIAL ARTICLE

Margins for Breast-Conserving Surgery With Whole-Breast Irradiation in Stage I and II Invasive Breast Cancer: American Society of Clinical Oncology Endorsement of the Society of Surgical Oncology/American Society for Radiation Oncology Consensus Guideline

Thomas A. Buchholz, Mark R. Somerfield, Jennifer J. Griggs, Souzan El-Eid, M. Elizabeth H. Hammond, Gary H. Lyman, Ginny Mason, and Lisa A. Newman

The panel reinforces and amplifies the guideline authors' call for the monitoring of outcomes of the guideline at the institutional level, as institutions transition to adopting the SSO/ASTRO recommendations;

SENONETWORK 2013

Margini di resezione chirurgica dopo chirurgia conservativa

Gruppo di lavoro

Coordinatori: V. Galimberti; D. Santini
Chirurgia: V. Galimberti; M. Taffurelli
Radiologia: E. Cassano; C. Trentin; A. Frigerio
Anatomia patologica: D. Santini; F. Pietribiasi
Oncologia medica: E. Munzone; C. Tondini
Radioterapia: M.C. Leonardi; C. Aristei
Segretaria scientifica: G. Corso

INDICE GENERALE

4. RUOLO DELLA RADIOTERAPIA

L'atteggiamento del radioterapista, nei casi **positivi** che **non vengono radicalizzati**….

Multiplo:

Il rischio di recidiva è considerato elevato e deve sempre essere richiesta la **re-escissione.**

Quando non tecnicamente possibile con un ulteriore intervento chirurgico conservativo o in caso di rifiuto della paziente ad essere sottoposta a mastectomia, previa adeguata informazione del rapporto rischio/beneficio, la dose del *boost* viene aumentata, con dosi variabili, ma in genere fino ad un massimo di 20 Gy (o dose equivalente, nei trattamenti ipofrazionati).

Positive margins, defined as ink on invasive cancer or DCIS, are associated with at least a 2-fold increase in IBTR. This increased risk in IBTR is not nullified by: delivery of a boost, delivery of systemic therapy (endocrine therapy, chemotherapy, biologic therapy), or favorable biology.

4. RUOLO DELLA RADIOTERAPIA

L'atteggiamento del radioterapista, nei casi **positivi** che **non vengono radicalizzati**….

Unico:

in funzione **dell'estensione,** possono essere presi in considerazione sia la **re-scissione** sia la **radioterapia con dosaggio del *boost* aumentato**, con dosi variabili, ma in genere fino ad un massimo di 20 Gy (o dose equivalente, nei trattamenti ipofrazionati)

Questo è il caso in cui la presenza di altri fattori di rischio noti per recidiva locale può avere un peso nella strategia terapeutica, che deve derivare da una decisione multidisciplinare.

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early

CARCINOMA INVASIVO

Indicazioni,

Dosi

Volumi Clinici...

Ipofrazionamento

I dati provenienti dalla pubblicazione dei risultati di studi randomizzati hanno dimostrato che dosi di 40 Gy in 15 frazioni e 42.5 Gy in 16 frazionati hanno sicurezza e efficacia comparabili al frazionamento convenzionale.

Sulla base di questi dati l'ipofrazionamento è considerato uno standard nelle linee guida di paesi anglosassoni

Big-time changes Sep 23, 2013 ATLANTA, Georgia —

Five radiation oncology practices should not be routinely used because they are not supported by evidence, according to the American Society for Radiation Oncology (ASTRO).

……

…..**ASTRO** states that oncologists should not initiate whole breast radiotherapy as part of breast conservation therapy in women aged 50 years or older with early stage invasive breast cancer without considering shorter treatment schedules.

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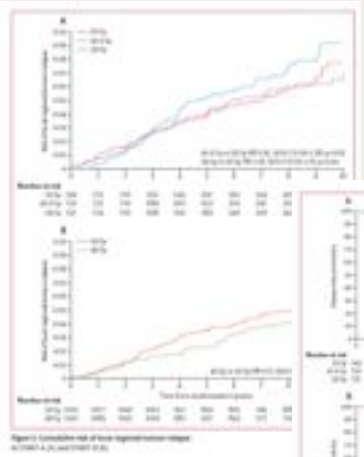
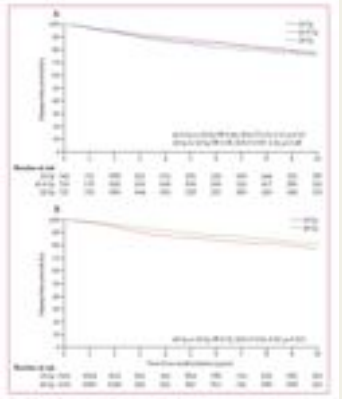
www.thelancet.com/oncology Vol 14 October 2013

Hypofractionated breast radiation: preferred standard of care?

Bruce G Haffty, Thomas A Buchholz





The UK Standardisation of Breast Radiotherapy (START) trials of radiotherapy hypofractionation for treatment of early breast cancer: 10-year follow-up results of two randomised controlled trials

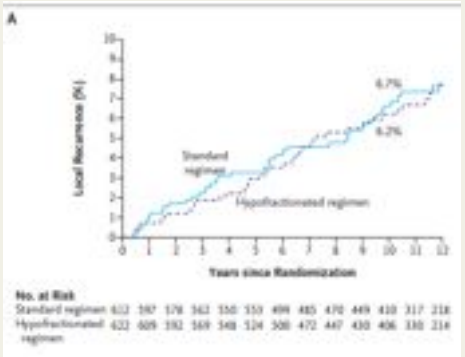
Joanne S Haviland, J Roger Owen, John A Dewar, Rajiv K Agrawal, Jane Barrett, Peter J Barrett-Lee, H Jane Dobbs, Penelope Hopwood, Pat A Lawton, Brian J Magee, Judith Mills, Sandra Simmons, Mark A Sydenham, Karen Venables, Judith M Bliss, John R Yarnold*, on behalf of the START Trialists' Group†*

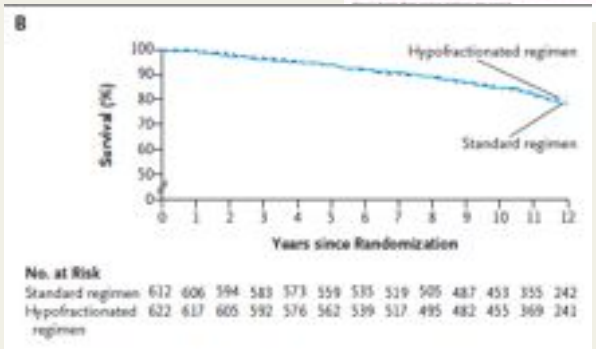
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Long-Term Results of Hypofractionated Radiation Therapy for Breast Cancer

Timothy J. Whelan, B.M., B.Ch., Jean-Philippe Pignol, M.D., Mark N. Levine, M.D., Jim A. Julian, Ph.D., Robert MacKenzie, M.D., Sameer Parpia, M.Sc., Wendy Shelley, M.D., Laval Grimard, M.D., Julie Bowen, M.D., Himu Lukka, M.D., Francisco Perera, M.D., Anthony Fyles, M.D., Ken Schneider, M.D., Sunil Gulavita, M.D., and Carolyn Freeman, M.D.





Hypofractionation was also associated with fewer normal tissue effects.

These outcomes were the same irrespective of age, tumour grade, stage, chemotherapy use, or use of tumour bed boost.

Thus, the shorter regimen is safe and effective for most women with breast cancer, and might be the preferred strategy.

Should these findings lead to abandonment of the 5–6 week standard for all patients with breast cancer?

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Lymphnodes Radiation ???

Only a minority of patients (116/2215 [7%]) in START-B received regional lymphatic radiation…….

…….no evidence of increased normal tissue effects of the brachial plexus, arm oedema, or shoulder stiffness with hypofractionated lymphatic RT

www.thelancet.com/oncology Vol 14 October 2013

Lymphnodes Radiation ???

Bruce G Haffty, Thomas A Buchholz

……theoretical modelling of normal tissue effects, which predicts that 40 Gy in 15 fractions should be as safe as 50 Gy in 25 fractions for all normal tissues.

"The regimen is equivalent to 47 Gy in 2.0-Gy fractions if the a/b value for brachial plexus is 2.0 Gy or to 49 Gy in 2.0-Gy fractions, if a/b = 1.0 Gy"
Yarnolds, 2011

Thus, we agree with Haviland and colleagues that hypofractionation is a reasonable approach even when treating the regional lymph nodes.

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Boost ???

Although use of a tumour bed boost was optional in the START trials, it was common:

1152/1900 (61%) of START-A pts
868/2023 (43%) of START-B pts

Tumour bed boosts were **equally distributed between the treatment groups.**

No differences in tumour control or normal tissue outcome

We therefore agree with the authors that the use of a boost with a hypofractionated schedule seems to be safe and effective.

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Padova, 8-11 novembre

www.thelancet.com/oncology Vol 14 October 2013

Bruce G Haff ty, Thomas A Buchholz

Hypofractionated breast radiation: preferred standard of care?

Should these findings lead to abandonment of the 5–6 week standard for all patients with breast cancer?

Overall, the results of the START trials have significant clinical implications for patients as the hypofractionated regimen might provide many patients with a **more convenient treatment**

Widespread use of a 3 week course of radiation would **reduce health-care costs**, whilst maintaining high treatment quality without compromising outcomes.

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Elderly

TUMORE MAMMARIO NELLA DONNA ANZIANA

Pur in assenza di un generale consenso, generalmente si considerano **anziane** le persone di **età superiore a 65 anni**.

Il **grado di invecchiamento** è estremamente **variabile** … in rapporto al performance status, alla presenza di co-morbidità, alle eventuali condizioni di disagio sociale

Le **indicazioni al trattamento** conservativo e demolitivo sono **sovrapponibili** a quelle delle pazienti più giovani, ma devono tener conto della possibilità per la paziente, in caso di terapia conservativa, di **poter ricevere un trattamento radioterapico adiuvante.**

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Lancet Oncol 2007;

Management of breast cancer in elderly individuals: recommendations of the International Society of Geriatric Oncology

Hans Wildiers, Ian Kunkler, Laura Biganzoli, Jacques Fracheboud, George Vlastos, Chantal Bernard-Marty, Arti Hurria, Martine Extermann, Véronique Girre, Etienne Brain, Riccardo A Audisio, Harry Bartelink, Mary Barton, Sharon H Giordano, Hyman Muss, Matti Aapro

That radiotherapy will improve overall survival—which is much more affected by comorbidity, ageing, or the occurrence of distant metastases than local relapse—is unlikely.

A decision to offer radiotherapy will need to take into account patient health and functional status, risks of mortality from comorbidities (particularly cardiac and vascular), and the risks of local recurrence.

Autore	LR no RT %	LR RT %	Vantaggio %	
Clarke, 2005	13	3	10	>70aa; > S
Veronesi, 2001	4	4	0	> 65 solo 48 pz, <70 escluse
Hughes, 2004	4	1	3	> 70aa; ER+; no >S;
Truong, 2006	8	3	5	> 75 aa; >S; >SS
Smith, 2002	5	1	4	>70; T2cm max N0; OR+/scon
Fyles, 2004	1.2	0	1.2	T1; > 60 aa no > S

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TUMORE MAMMARIO NELLA DONNA ANZIANA

VOLUME 31 · NUMBER 19 · JULY 1 2013

JOURNAL OF CLINICAL ONCOLOGY | ORIGINAL REPORT

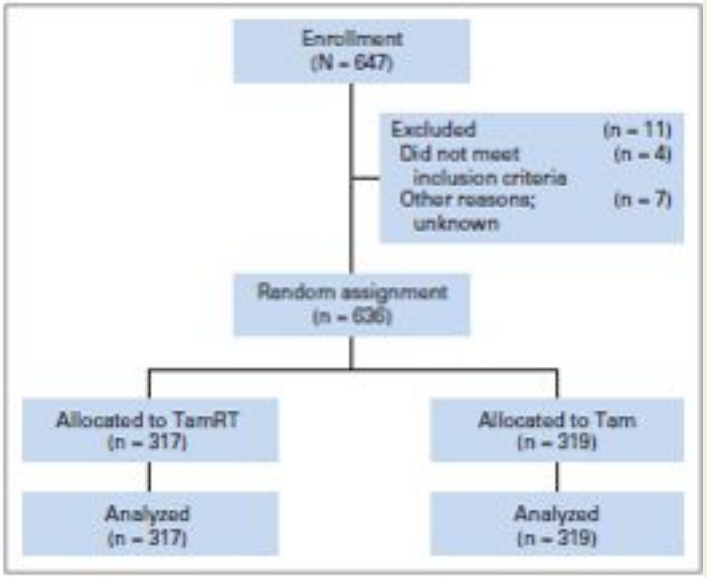
July 1994 → February 1999

T1N0M0
ER+

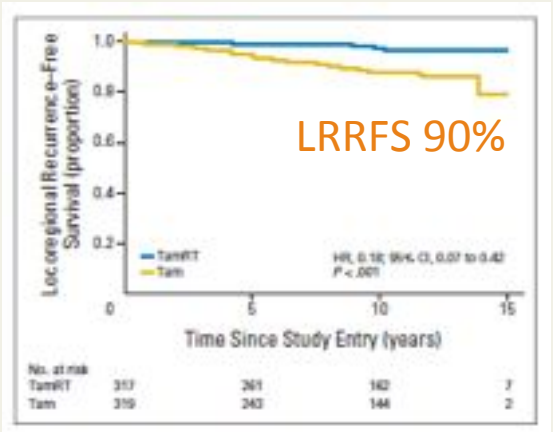
Lumpectomy Plus Tamoxifen With or Without Irradiation in Women Age 70 Years or Older With Early Breast Cancer: Long-Term Follow-Up of CALGB 9343

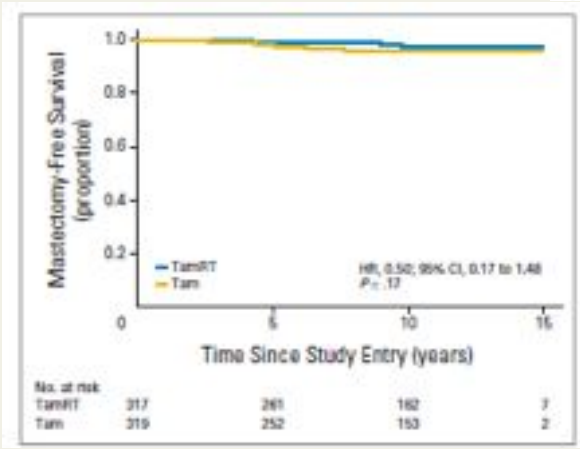
Kevin S. Hughes, Lauren A. Schnaper, Jennifer R. Bellon, Constance T. Cirrincione, Donald A. Berry, Beryl McCormick, Hyman B. Muss, Barbara L. Smith, Clifford A. Hudis, Eric P. Winer, and William C. Wood

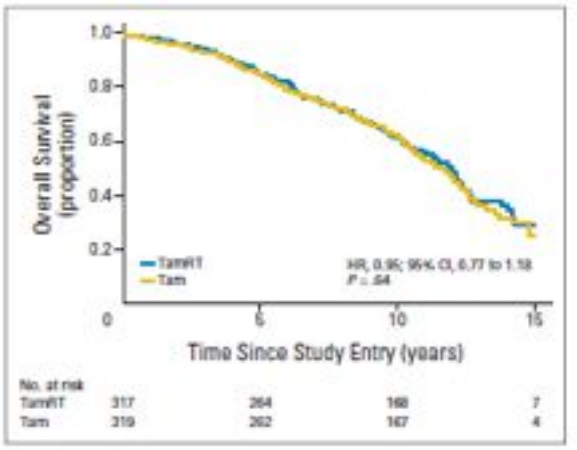
See accompanying editorial on page 2367 and article on page 2377



LRRFS 98% at 10 years







longer time to locoregional recurrence

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TUMORE MAMMARIO NELLA DONNA ANZIANA

Ann Surg Oncol (2014) 21:408–415
DOI 10.1245/s10434-013-3233-x

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

ORIGINAL ARTICLE – BREAST ONCOLOGY

Breast-Conservative Surgery With and Without Radiotherapy in Patients Aged 55–75 Years With Early-Stage Breast Cancer: A Prospective, Randomized, Multicenter Trial Analysis After 108 Months of Median Follow-up

C. Tinterri, MD[1], W. Gatzemeier, MD[1], A. Costa, MD[2], M. A. Gentilini, PhD[3], V. Zanini, MD[4], L. Regolo, MD[4], C. Pedrazzoli, MD[5], E. Rondini, MD[5], C. Amanti, MD[6], G. Gentile, MD[7], M. Taffurelli, MD[8], P. Fenaroli, MD[9], C. Tondini, MD[9], G. Sacchetto, MD[10], P. Sismondi, MD[11], R. Murgo, MD[12], M. Orlandi, MD[13], E. Cianchetti, MD[14], and C. Andreoli, MD[1]

749 unifocal infiltrating breast cancer up to 25 mm,

0–3 positive axillary nodes,

no EIC

No lymphvascular invasion

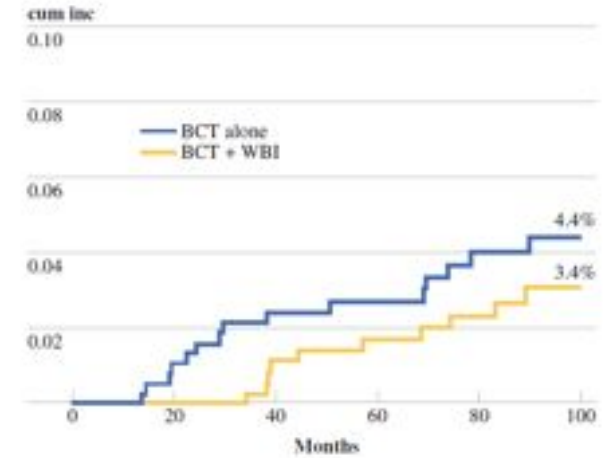

FIG. 1 Nine-year cumulative incidence of in-breast recurrence

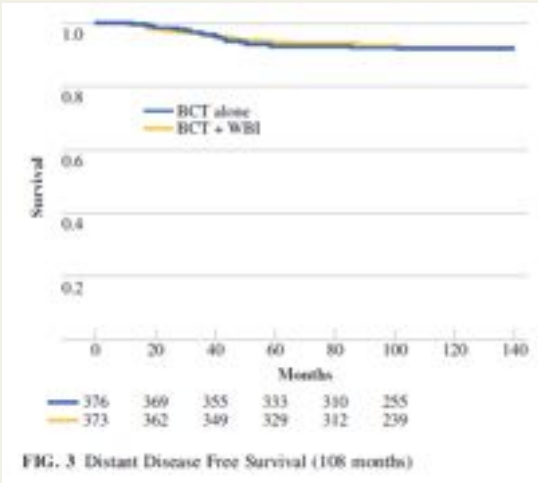

FIG. 3 Distant Disease Free Survival (108 months)

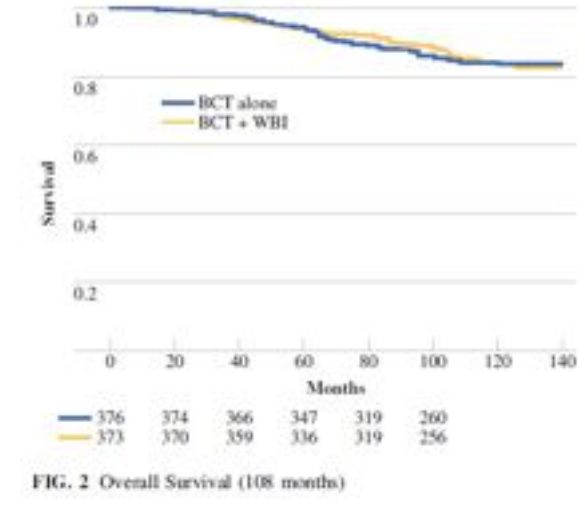

FIG. 2 Overall Survival (108 months)

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Associazione Italiana Radioterapia Oncologica

Padova, 8-11 novembre

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Annals of SURGICAL ONCOLOGY

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C. Tinterri, MD[1], W. Gatzemeier, MD[2], A. Costa, MD[2], M. A. Gentilini, PhD[3], V. Zanini, MD[4], L. Regolo, MD[4], C. Pedrazzoli, MD[5], E. Rondini, MD[5], C. Amanti, MD[6], G. Gentile, MD[7], M. Taffurelli, MD[8], P. Fenaroli, MD[9], C. Tondini, MD[9], G. Sacchetto, MD[10], P. Sismondi, MD[11], R. Murgo, MD[12], M. Orlandi, MD[13], E. Cianchetti, MD[14], and C. Andreoli, MD[1]

>50 % of the pts →65 years or older

88 % → pT1 disease

85 %→ pN0

92 % →ER+ →OT

87% →G1 or G2

82% →Ki-67 was <20 %

No EIC or LVI

Adequate treatment tailoring….

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Padova, 8-11 novembre

Elderly

2Gy x 25

50 Gy

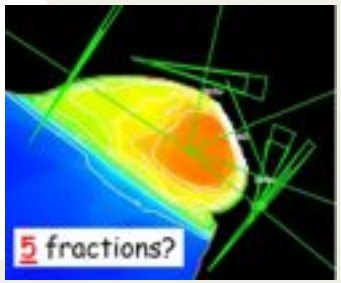
Boost 2Gyx5

2.65 x 15

40 Gy

60 Gy

FAST-Forward



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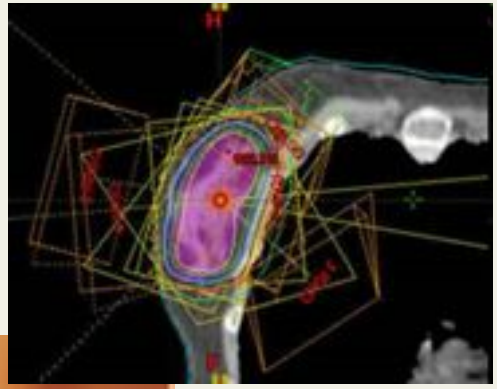
APBI
Accelerated Partial Breast Irradiation




Indicazioni, dosi e volumi clinici nell' irradiazione della patologia mammaria: stato dell'arte

XXIV CONGRESSO NAZIONALE

AIRO2014

Padova, 8-11 novembre

Ann Surg Oncol (2013) 20:3279–3285
DOI 10.1245/s10434-013-3158-4

Annals of SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BREAST ONCOLOGY

Treatment Efficacy with Accelerated Partial Breast Irradiation (APBI): Final Analysis of the American Society of Breast Surgeons MammoSite® Breast Brachytherapy Registry Trial

Chirag Shah, MD[1], Shahed Badiyan, MD[1], J. Ben Wilkinson, MD[2], Frank Vicini, MD, FACR[3], Peter Beitsch, MD[4], Martin Keisch, MD[5], Douglas Arthur, MD[6], and Maureen Lyden, MS[7]

Radiotherapy and Oncology 108 (2013) 197–202

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Phase III randomised trial

Breast-conserving therapy with partial or whole breast irradiation: Ten-year results of the Budapest randomized trial

Csaba Polgár[a,*], János Fodor[a], Tibor Major[a], Zoltán Sulyok[b]

[a]Center of Radiotherapy; [b]Center of Surgery; [c]National Institute of Oncology, Budapest, Hungary

Intraoperative radiotherapy versus external radiotherapy for early breast cancer (ELIOT): a randomised controlled equivalence trial

...mensz, Claudio Sangalli, Alberto Luini, Paolo Veronesi, ...a Cattani, Oreste Gentilini, Mattia Intra, Pietro Caldarella

Risk-adapted targeted intraoperative radiotherapy versus whole-breast radiotherapy for breast cancer: 5-year results for local control and overall survival from the TARGIT-A randomised trial

Jayant S Vaidya, Frederik Wenz, Max Bulsara, Jeffrey S Tobias, David J Joseph, Mohammed Keshtgar, Henrik L Flyger, Samuele Massarut, Michael Alvarado, Christobel Saunders, Wolfgang Eiermann, Marinos Metaxas, Elena Sperk, Marc Sütterlin, Douglas Brown, Laura Esserman, Mario Roncadin, Alastair Thompson, John A Dewar, Helle M R Holtveg, Steffi Pigorsch, Mary Falzon, Eleanor Harris, April Matthews, Chris Brew-Graves, Ingrid Potyka, Tammy Corica, Norman R Williams, Michael Baum, on behalf of the TARGIT trialists' group

XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

CONSENSUS STATEMENT

ACCELERATED PARTIAL BREAST IRRADIATION CONSENSUS STATEMENT FROM THE AMERICAN SOCIETY FOR RADIATION ONCOLOGY (ASTRO)

Table 2. Patients "suitable" for APBI if all criteria are present

Factor	Criterion
Patient factors	
Age	≥60 y
BRCA1/2 mutation	Not present
Pathologic factors	
Tumor size	≤2 cm*
T stage	T1
Margins	Negative by at least 2 mm
Grade	Any
LVSI	No†
ER status	Positive
Multicentricity	Unicentric only
Multifocality	Clinically unifocal with total size ≤2.0 cm‡
Histology	Invasive ductal or other favorable subtypes§
Pure DCIS	Not allowed
EIC	Not allowed
Associated LCIS	Allowed
Nodal factors	
N stage	pN0 (i⁻, i⁺)
Nodal surgery	SN Bx or ALND‖
Treatment factors	
Neoadjuvant therapy	Not allowed

GEC-ESTRO Recommendations

Patient selection for accelerated partial-breast irradiation (APBI) after breast-conserving surgery: Recommendations of the Groupe Européen de Curiethérapie-European Society for Therapeutic Radiology and Oncology (GEC-ESTRO) breast cancer working group based on clinical evidence (2009)

Characteristic	A/low-risk group – good candidates for APBI
Patient age	>50 years
Histology	IDC, mucinous, tubular, medullary, and colloid cc.
ILC	Not allowed
Associated LCIS	Allowed
DCIS	Not allowed
HG	Any
Tumour size	pT1–2 (⩽30 mm)
Surgical margins	Negative (⩾2 mm)
Multicentricity	Unicentric
Multifocality	Unifocal
EIC	Not allowed
LVI	Not allowed
ER, PR status	Any
Nodal status	pN0 (by SLNB or ALND[a])
Neoadjuvant chemotherapy	Not allowed

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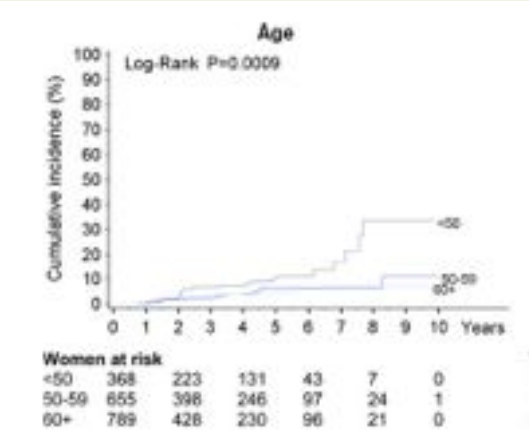
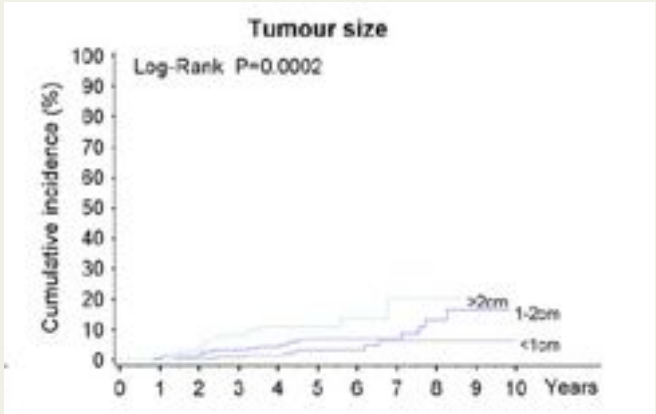
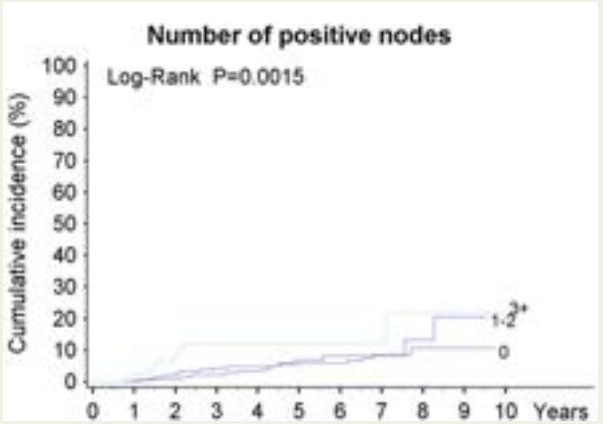
Breast Cancer Res Treat (2010) 124:141–151
DOI 10.1007/s10549-010-1115-5

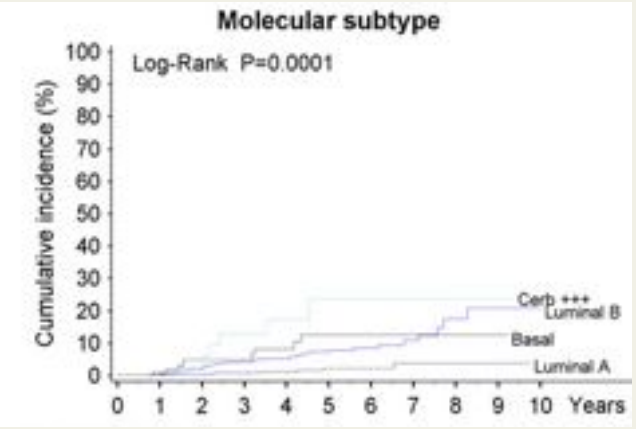
CLINICAL TRIAL

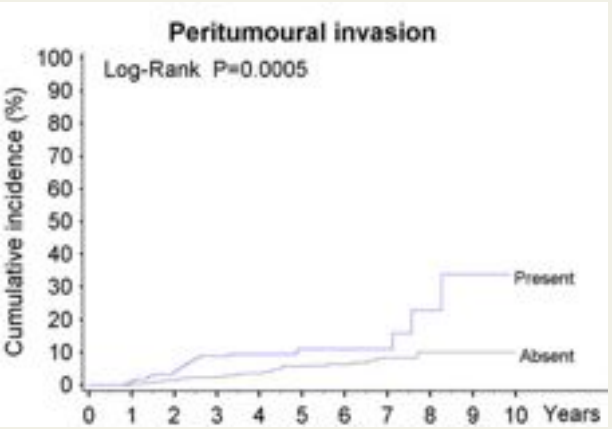
Intraoperative radiotherapy during breast conserving surgery: a study on 1,822 cases treated with electrons

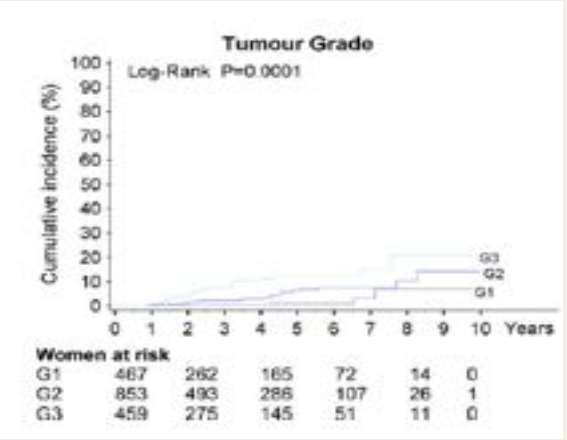












Clinical Investigation: Breast Cancer

2012

How Do the ASTRO Consensus Statement Guidelines for the Application of Accelerated Partial Breast Irradiation Fit Intraoperative Radiotherapy? A Retrospective Analysis of Patients Treated at the European Institute of Oncology

Maria Cristina Leonardi, M.D.,* Patrick Maisonneuve, Ing.,† Mauro Giuseppe Mastropasqua, M.D.,‡ Anna Morra, M.D.,* Roberta Lazzari, M.D.,* Nicole Rotmensz, M.Sc.,† Claudia Sangalli, D.M.,§ Alberto Luini, M.D.,§ Umberto Veronesi, M.D.,¶ and Roberto Orecchia, M.D.*‖

International Journal of Radiation Oncology biology • physics

The 5-year rate of LR

Suitable → 1.5%
Cautionary → 4.4%
Unsuitable → 8.8%

Conclusion:

In the context of patients treated with ELIOT, the ASTRO guidelines identify well the groups for whom APBI might be considered as an effective alternative to whole breast radiotherapy and also identify groups for whom APBI is not indicated

Risk-adapted targeted intraoperative radiotherapy versus whole-breast radiotherapy for breast cancer: 5-year results for local control and overall survival from the TARGIT-A randomised trial

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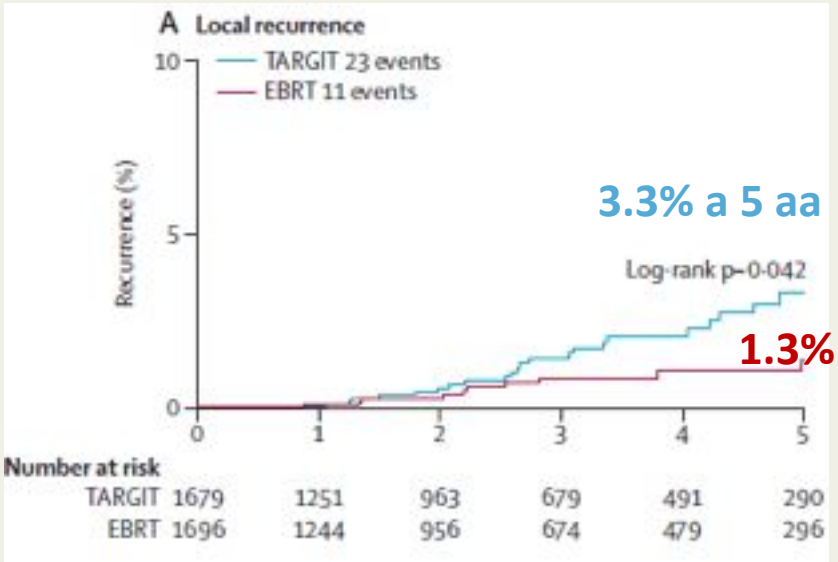
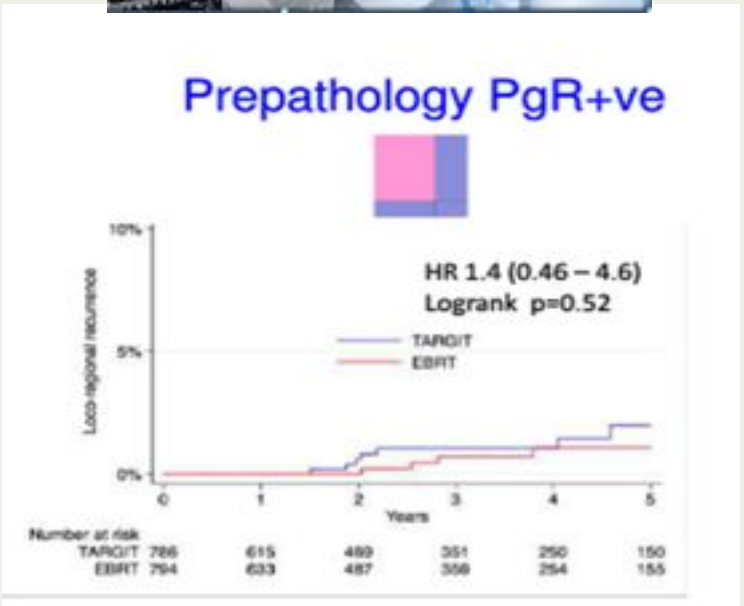
www.thelancet.com **Vol 383 February 15, 2014**





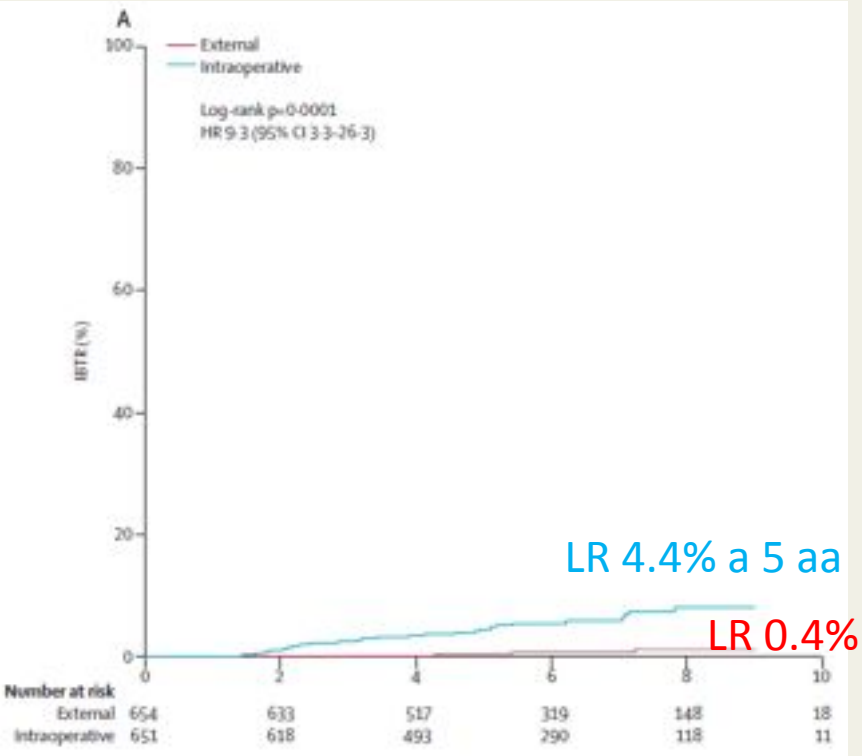
medium FU of 5. 8 years

LR → 35 IORT pts
4 ERT pts

(p<0·0001).

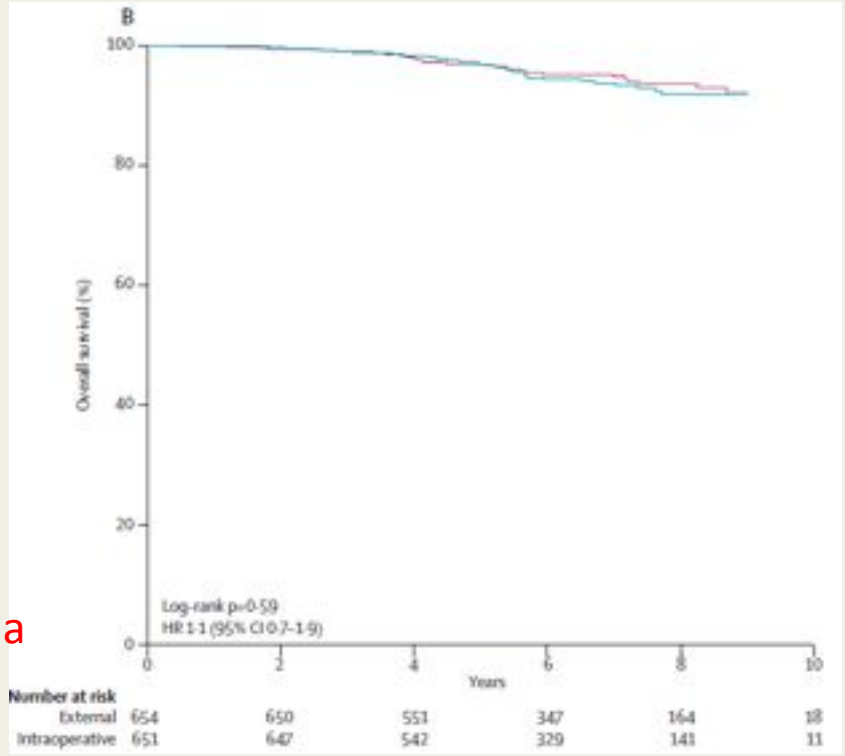
Intraoperative radiotherapy versus external radiotherapy for early breast cancer (ELIOT): a randomised controlled equivalence trial

Umberto Veronesi, Roberto Orecchia, Patrick Maisonneuve, Giuseppe Viale, Nicole Rotmensz, Claudio Sangalli, Alberto Luini, Paolo Veronesi, Viviana Galimberti, Stefano Zurrida, Maria Cristina Leonardi, Roberta Lazzari, Federica Cattani, Oreste Gentilini, Mattia Intra, Pietro Caldarella, Bettina Ballardini



LR 4.4% a 5 aa

LR 0.4% a 5 aa



Trial

progettato anni fa

prima della pubblicazione dei criteri ESTRO/ ASTRO

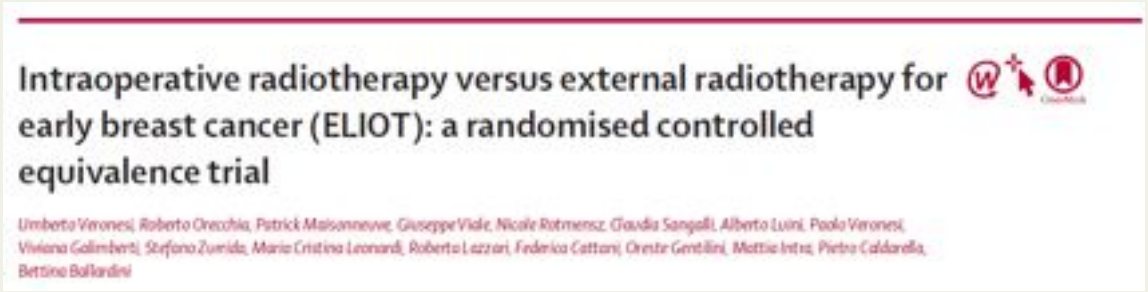
prima che fossero disponibili dati sulla IORT con e-

quando le LR dopo chirurgia conservativa +RT→3-20%

criteri age >48 anni; nodulo <2.5cm;

controindicazioni : DCIS; multifocalità; T>2.5 cm; M+;

NON è Intention to treat→ tutte le pazienti hanno realmente ricevuto il trattamento del braccio di randomizzazione



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SELEZIONE PAZIENTI !!!

5-year IBTR exceeded **10%** in patients with

large (>2 cm) tumours,
four or more positive lymph nodes,
poorly differentiated (grade 3) tumours,
oestrogen-receptor negative tumours,
triple-negative breast tumours

Overall, **5-year** occurrence of **IBTR** was **1.5%** for selected low risk pts

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AIRO2014
Padova, 8-11 novembre

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early

CARCINOMA INVASIVO

CARCINOMA DUTTALE IN SITU

CARCINOMA DUTTALE IN SITU

3-5% degli anni '70- '80 del secolo scorso
25-30% attuale

in seguito alla maggiore diffusione dello screening mammografico

Circa l'80-90% delle lesioni non è palpabile ed è riconoscibile solo con la mammografia (microcalcificazioni)

La maggior parte delle pazienti è considerata eligibile alla chirurgia conservativa.

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Dagli studi finora pubblicati emerge che la RT postoperatoria riduce in modo significativo l'incidenza di recidive locali anche nelle pazienti a basso rischio.

Nel DCIS dopo chirurgia conservativa è indicata la RT sull'intera mammella residua (categoria di evidenza 1 NCCN).

VOLUME 31 · NUMBER 32 · NOVEMBER 10 2013

JOURNAL OF CLINICAL ONCOLOGY | ORIGINAL REPORT

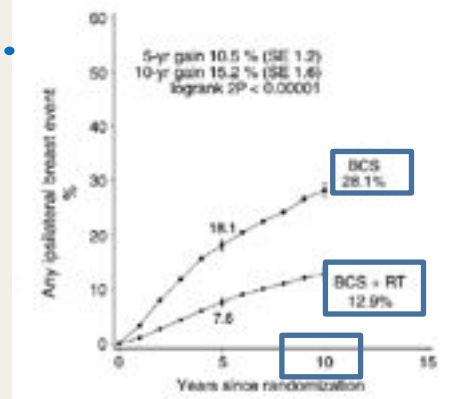
Breast-Conserving Treatment With or Without Radiotherapy in Ductal Carcinoma In Situ: 15-Year Recurrence Rates and Outcome After a Recurrence, From the EORTC 10853 Randomized Phase III Trial

15-year LR-free rate
NO RT→ 69%
RT→ 82%.

Overview of the Randomized Trials of Radiotherapy in Ductal Carcinoma In Situ of the Breast

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

J Natl Cancer Inst Monogr. 2010;2010(41):162-77.




Is DCIS Breast Cancer, and How Do I Treat it?

Despite the effect of radiotherapy to reduce the risk of local recurrence, it does not influence overall survival or breast cancer-specific survival.

Poichè la RT

ha effetti collaterali lievi e eccezionalmente gravi

impatta sulla qualità di vita della paziente

il numero di pazienti trattate è spesso alto per le disponibilità del centro…

E' identificabile una categoria di pazienti con DCIS che può omettere la RT?

DCIS
Risk factors for LR

Overview of the Randomized Trials of Radiotherapy in Ductal Carcinoma In Situ of the Breast

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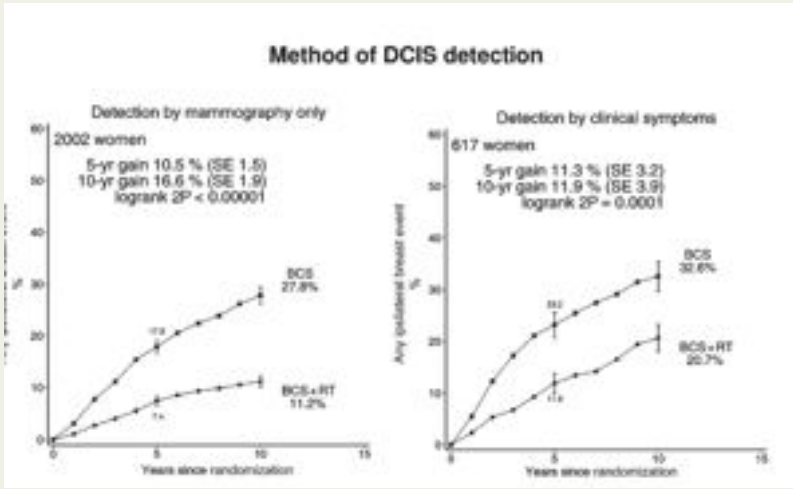
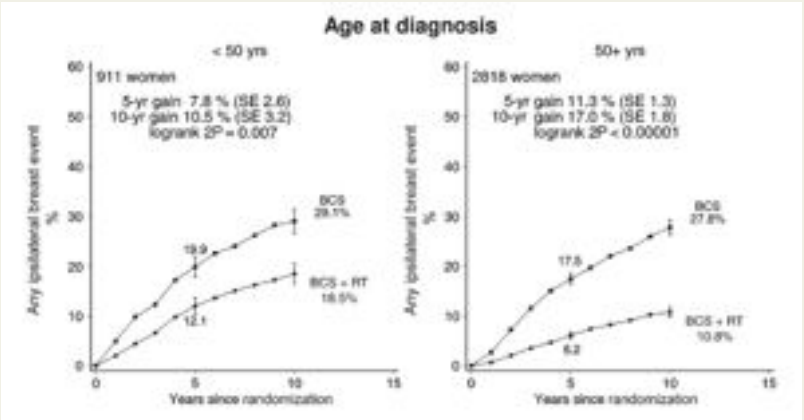
J Natl Cancer Inst Monogr. 2010;2010(41):162-77.

Pts with palpable mass or nipple discharge, have a higher risk of local recurrence than those having a screen-detected, nonpalpable lesion

young age is a clear risk factor for local recurrence

Definition of young varies from younger than age 40 to younger than age 45 years.
Bijker N, 2006



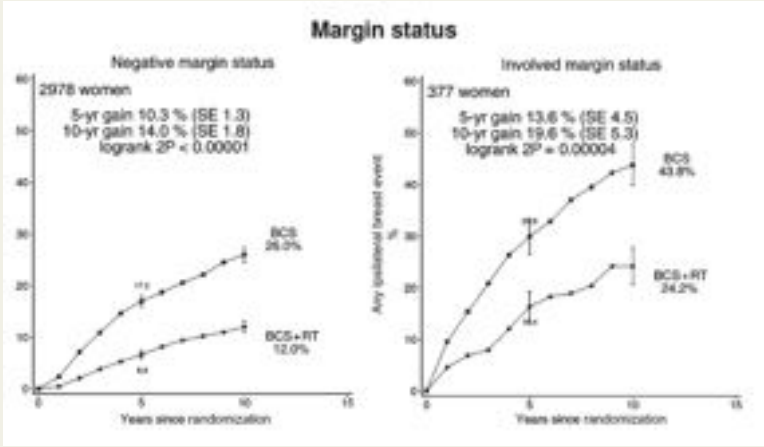


DCIS
Risk factors for recurrence

Overview of the Randomized Trials of Radiotherapy in Ductal Carcinoma In Situ of the Breast

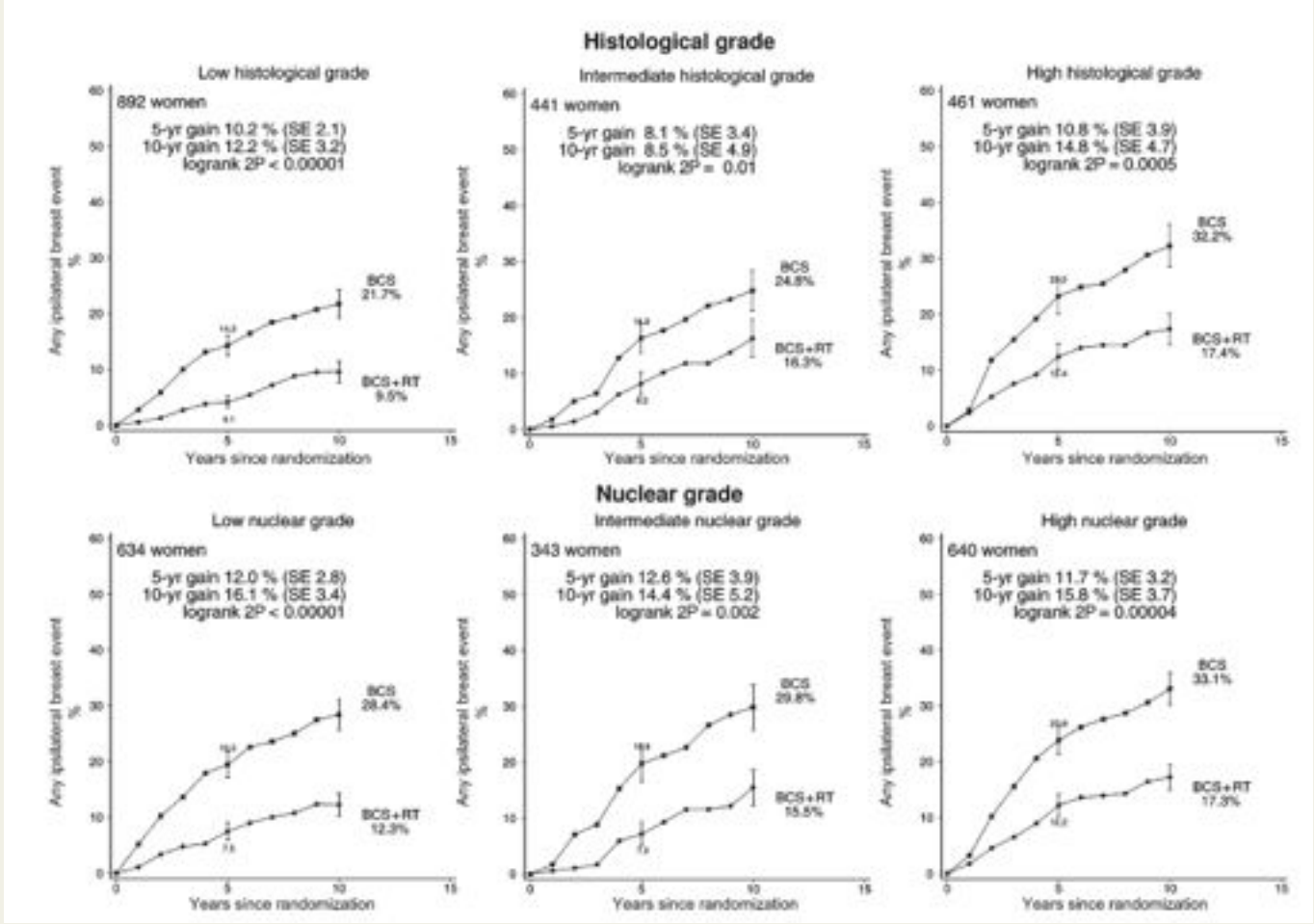
Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

Although an optimal width of the tumor-free margin has not fully been established, many studies have shown that involved margins are associated with an increased risk of local recurrence



DCIS
Risk factors for recurrence

high-grade lesions



711 pts

	low/intermediate disease (558 pts)	high-grade disease (103 pts)
median age	60 years (range 28 to 88)	59 years (range 33 to 87)
median lesion size	6mm (range 1 to 25) 76.5% less than 10mm	5mm (range, 2 to 10), 87.6% less than 10mm
margins	5 mm or wider in 69.2% >10 mm wide or no tumor found on re-excision in 48.5%	5 mm or wider in 82.9% > 10 mm or or no tumor on re-excision in 53.3% of patients

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Local Excision Alone Without Irradiation for Ductal Carcinoma In Situ of the Breast: A Trial of the Eastern Cooperative Oncology Group

Lori L. Hughes, Malin Wang, David L. Page, Robert Gray, Lawrence J. Solin, Nancy E. Davidson, Mary Ann Lowen, James N. Ingle, Abram Recht, and William C. Wood

Low-intermediate grade

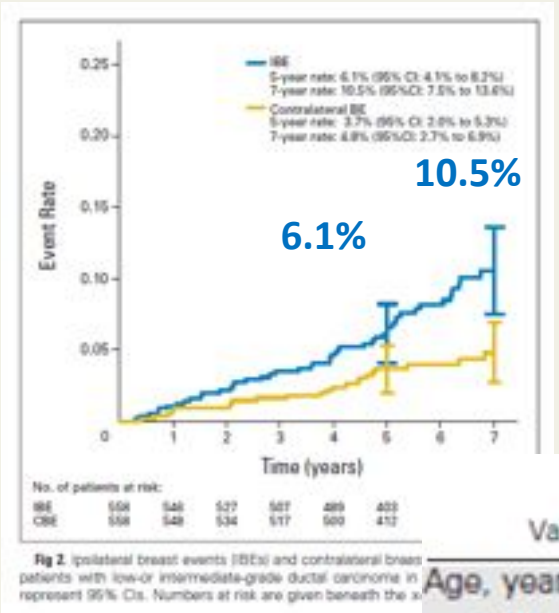
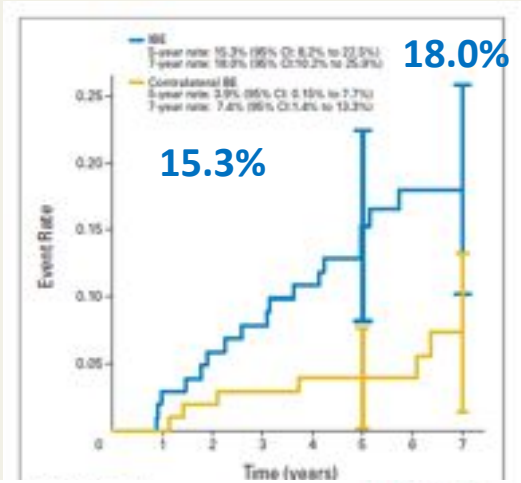


Fig 2. Ipsilateral breast events (IBEs) and contralateral breast patients with low-or intermediate-grade ductal carcinoma in represent 95% CIs. Numbers at risk are given beneath the x

High grade



Variable	Low/Intermediate Grade		High Grade	
	No.	5-Year Rate (%)	No.	5-Year Rate (%)
Age, years				
< 45	49	8.5	11	54.4
≥ 45	509	5.9	92	10.3
Margin size, mm				
< 10	284	5.6	48	14.8
≥ 10	274	6.7	55	15.9
Lesion size, mm				
< 10	426	5.5	90	12.7
≥ 10*	132	8.1	13	32.9

Rigorously evaluated and selected patients
low- to intermediate-grade DCIS
margins 3 mm or wider
had an acceptably low rate of ipsilateral breast events at 5 years after excision without irradiation.
Hughes LL, 2009

Several investigators have reported rates of local recurrence of 5% at 5 years and of 15% at 10 years in retrospective studies of selected patients treated with local excision alone with very wide margins.
Silverstein MJ, 1999
Macdonald HR, 2006
de Mascarel I, 2000
Di Saverio S, 2008

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Review

Radiotherapy in DCIS, an underestimated benefit?

Bruno Cutuli, Jacques Bernier, Philip Poortmans

53% local invasive recurrences

Many authors state that RT is not affecting overall survival in DCIS patients (confirmed in four randomised trials and the EBCTCG meta-analysis .

However, even the meta-analysis remains underpowered for this endpoint.

Longer follow-up might be required, as death due to breast cancer after DCIS is a tertiary level effect after invasive recurrence and distance metastases.

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Radiotherapy and Oncology xxx (2014) xxx–xxx

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Review

Radiotherapy in DCIS, an underestimated benefit?

Bruno Cutuli [a,*], Jacques Bernier [b], Philip Poortmans [c]

[a] Institut du Cancer Courlancy, Reims, France; [b] Genolier Swiss Medical Network, Genolier, Geneva, Switzerland; [c] Dr. Bernard Verbeeten Institute, Tilburg, The Netherlands

CAUTELA E SELEZIONE

the latest results of EORTC trial showed a dramatic impact of invasive LR, with only a 60% 15-year survival rate

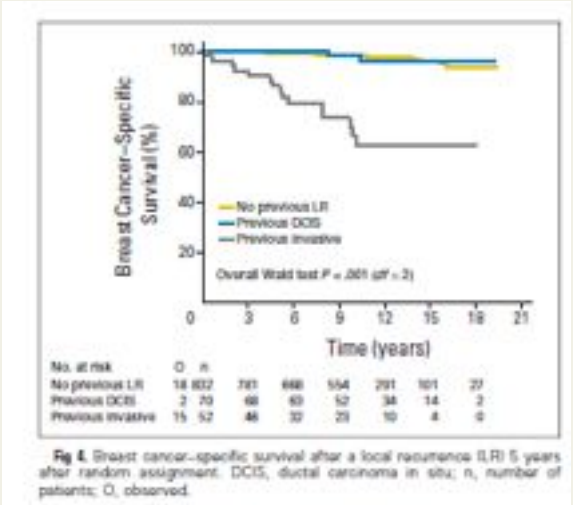
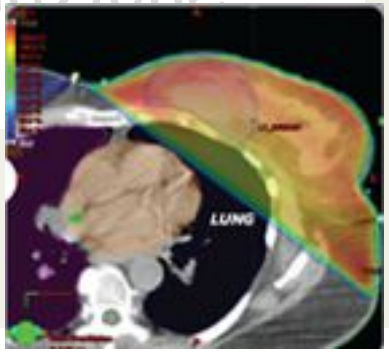


Fig 4. Breast cancer–specific survival after a local recurrence (LR) 5 years after random assignment. DCIS, ductal carcinoma in situ; n, number of patients; O, observed.

Similar results were shown in a retrospective multi-centric French study, with a 16.8% rate of metastases after invasive LR, versus 3.6% after in situ LR

Bojages 1999

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte



Neoplsia Mammaria Early

Sempre maggiore attenzione nella pianificazione

Sempre maggior attenzione e accuratezza nel contornamento

Permane il riferimento a documenti datati, ma validati (ICRU)

Rafforzata importanza degli atlanti

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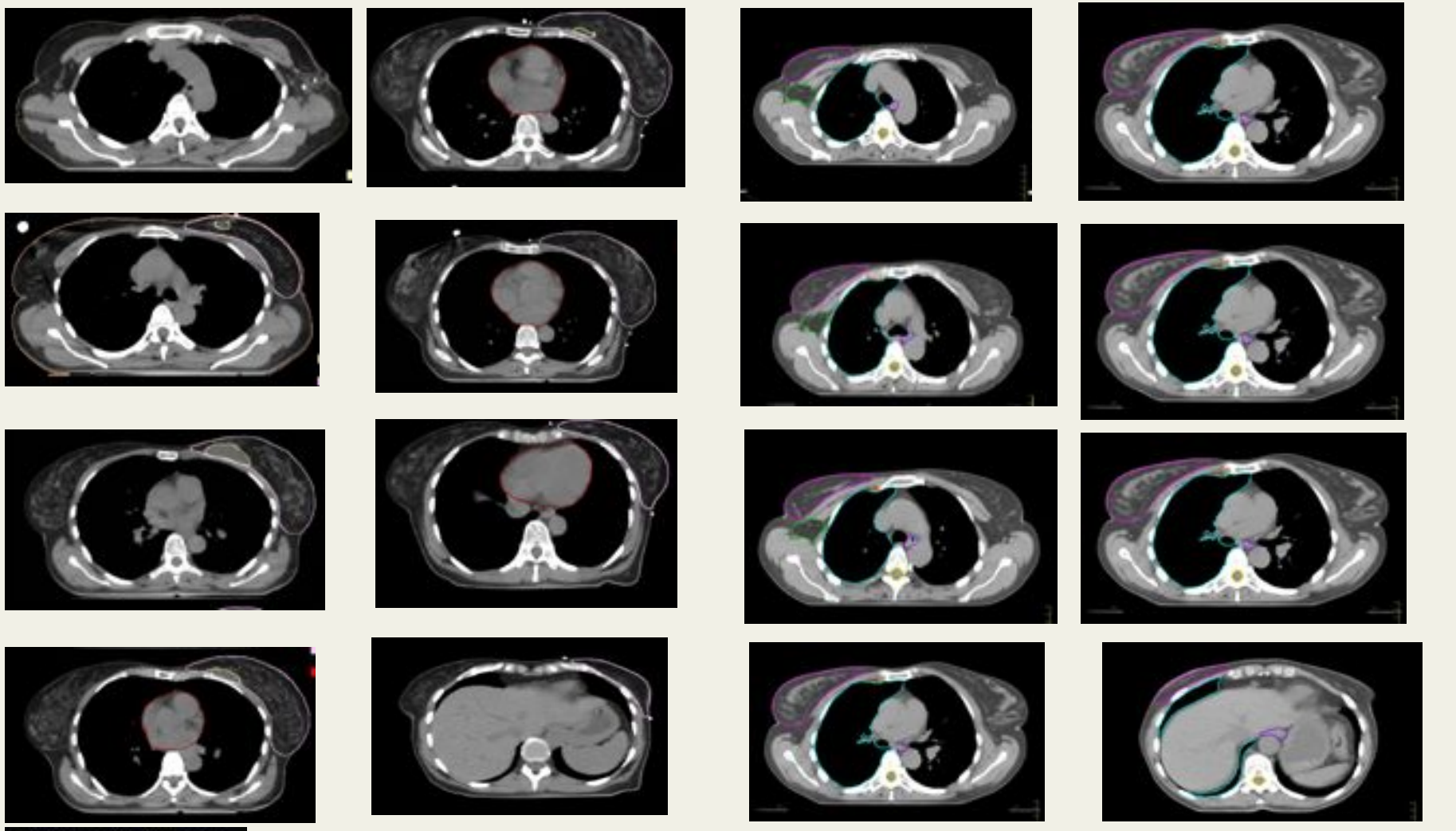


Breast Cancer Atlas for Radiation Therapy Planning: Consensus Definitions

RTOG
RADIATION THERAPY ONCOLOGY GROUP

Associazione Italiana di Radioterapia Oncologica
Gruppo di lavoro AIRO per la Patologia Mammaria

ESTRO

Courtesy Prof Poortmans

CTV breast

CTV breast = "whole glandular breast tissue"

- ✓ Not clearly visible on planning CT
- ✓ No clear anatomical borders visible (except dorsal)

Tips & tricks for delineation:

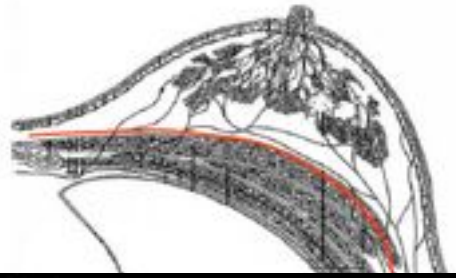
- ✓ Radio-opaque wire around breast helps but ≠ "true" border
- ✓ Take visible breast tissue into account
- ✓ Include visible surgical effects (seroma; clips, …)

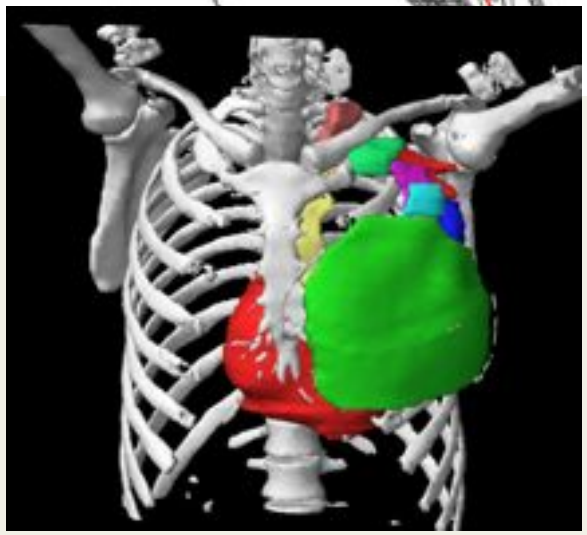
ESTRO

Courtesy Prof Poortmans

CTV breast

- ✓ Cranial: < sterno-clavicular joint
- ✓ Caudal: lowest side of visible breast contour
- ✓ Superficial: < 0.5 cm of skin (except T4b,c,d)
- ✓ Deep: superficial side of pectoral muscles/thoracic wall

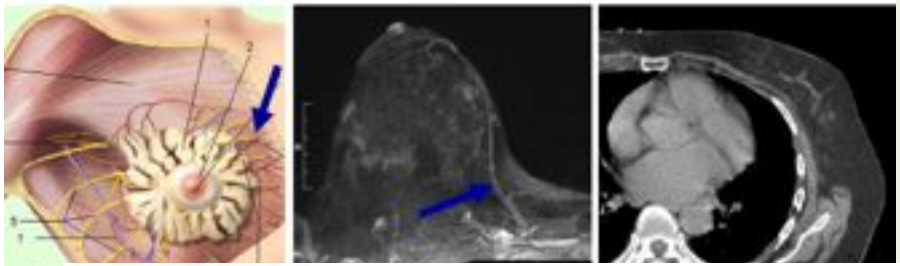




CTV breast

Medial:

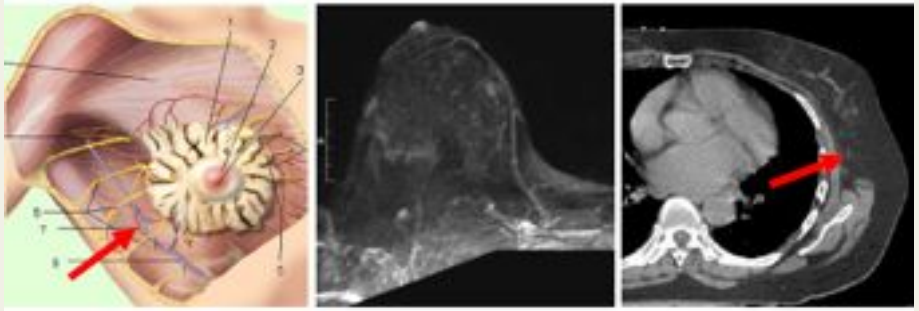
- ✓ < ipsilateral edge of the sternum
- ✓ < vessels: rami mammarii (from thoracica int)



CTV breast

Lateral:

- ✓ < lateral side of the visible breast contour
- ✓ < mid-axillary line
- ✓ < vessel: thoracica lateralis



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Gruppo di lavoro AIRO per la Patologia Mammaria

B. MAMMELLA E PARETE TORACICA

B.1 Raccomandazioni per il contornamento del CTV mammario:

1. Il contornamento deve essere eseguito su ogni scansione TC con uno spessore non superiore a 10 mm;
2. Può essere d'aiuto utilizzare dei reperi radioopachi per identificare i limiti palpabili della ghiandola;
3. E' consigliabile aggiustare la scala dei grigi al fine di migliorare la qualità delle immagini TC;
4. Tenere conto che la presenza di tessuto ghiandolare può essere variabile (generalmente è minore in donne in menopausa per la sostituzione adiposa) e che la parte radiologicamente evidenziabile può non rappresentare la reale estensione della ghiandola;
5. Il CTV è costituito dall'intera mammella fino a 0,5 cm ad di sotto della superficie cutanea. La cute, infatti, non fa parte del CTV, ma deve essere inclusa se ne è provata o supposta l'infiltrazione;
6. Il CTV mammario non comprende il muscolo pettorale a meno che non ci sia l'infiltrazione della fascia.

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Although **breast cancer atlas** , intra- or nterobserver variability still exists because of

differences in training,

clinical experience,

quality of the CT images.

Radiotherapy and Oncology

Partial breast irradiation

Multiinstitutional study on target volume delineation variation in breast radiotherapy in the presence of guidelines

Anke M. van Mourik, Paula H.M. Elkhuizen, Danny Minkema, Joop C. Duppen, On behalf of the Dutch Young Boost Study Group, Corine van Vliet-Vroegindeweij

Breast irradiation

Interobserver variability of clinical target volume delineation of glandular breast tissue and of boost volume in tangential breast irradiation

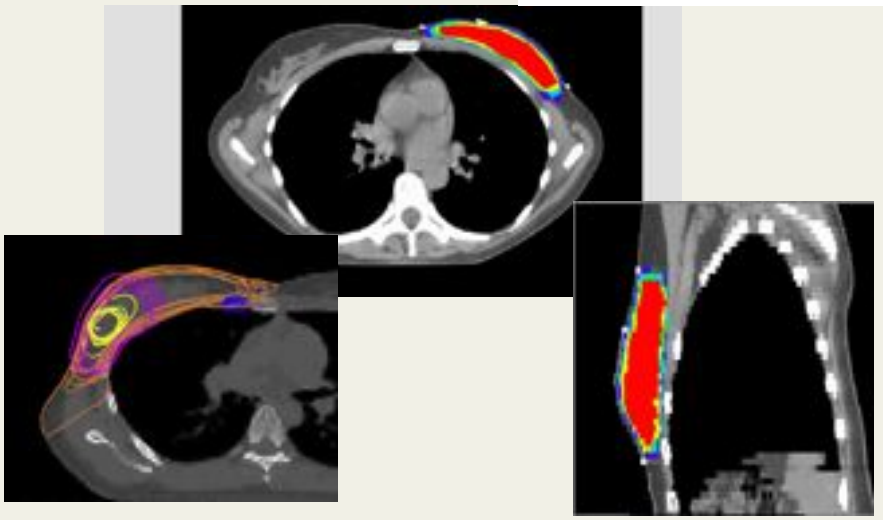
Henk Struikmans, Carla Wárlám-Rodenhuis, Tanja Stam, Gerard Stapper, Robbert J.H.A. Tersteeg, Gijsbert H. Bol, Cornelis P.J. Raaijmakers

PHYSICS CONTRIBUTION

VARIABILITY OF TARGET AND NORMAL STRUCTURE DELINEATION FOR BREAST CANCER RADIOTHERAPY: AN RTOG MULTI-INSTITUTIONAL AND MULTIOBSERVER STUDY

X. Allen Li, Ph.D., An Tai, Ph.D., Douglas W. Arthur, M.D., Thomas A. Buchholz, M.D., Shannon Macdonald, M.D., Lawrence B. Marks, M.D., Jean M. Moran, Ph.D., Lori J. Pierce, M.D., Rachel Rabinovitch, M.D., Alphonse Taghian, M.D., Ph.D., Frank Vicini, M.D., Wendy Woodward, M.D., Ph.D., and Julia R. White, M.D.

Jang J, IJROBP 2014



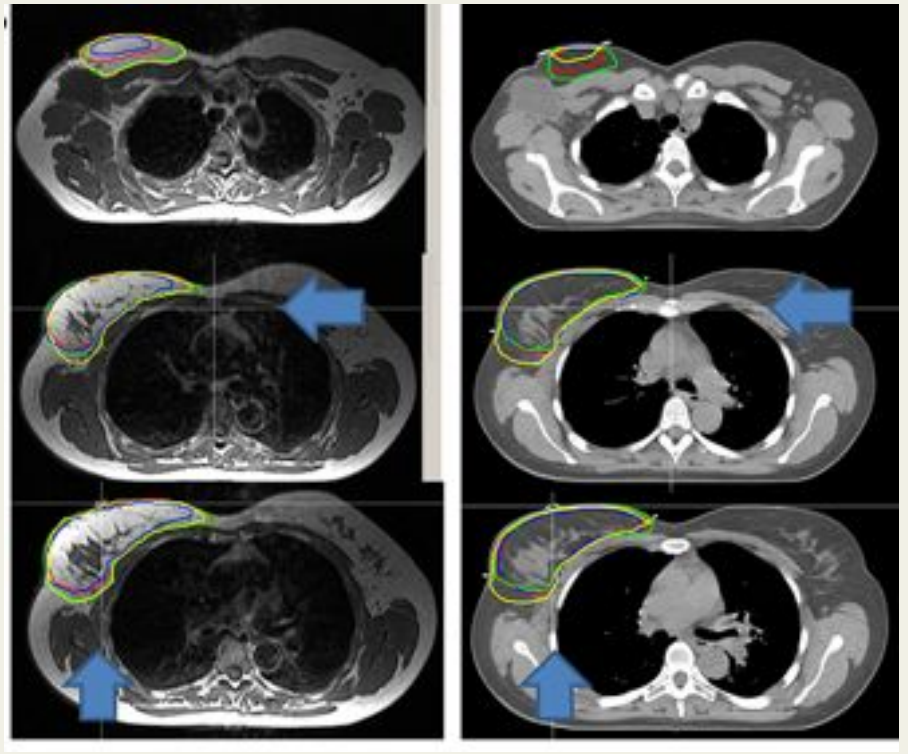
ELSEVIER

doi:10.1016/j.ijrobp.2010.07.004

CLINICAL INVESTIGATION **Breast**

MAGNETIC RESONANCE IMAGING– VERSUS COMPUTED TOMOGRAPHY–BASED TARGET VOLUME DELINEATION OF THE GLANDULAR BREAST TISSUE (CLINICAL TARGET VOLUME BREAST) IN BREAST-CONSERVING THERAPY: AN EXPLORATORY STUDY

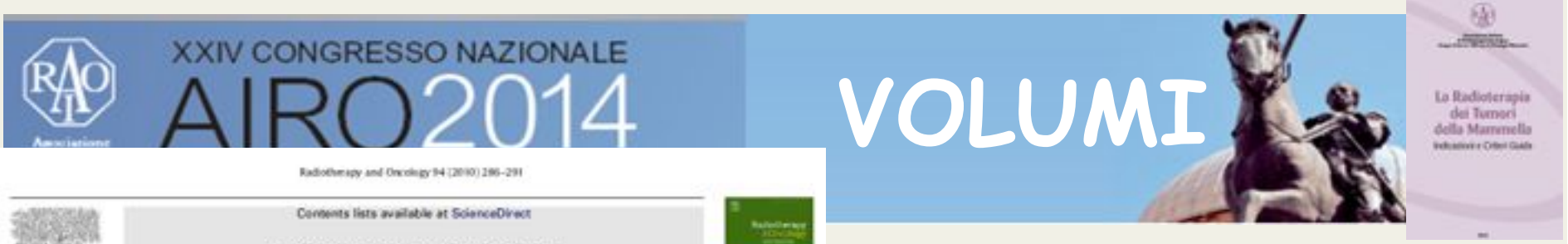
Marina Giezen, Drs., Br.,* Erik Kouwenhoven, Ph.D.,* Astrid N. Scholten, M.D., Ph.D.,† Emile G. Coerkamp, M.D.,‡ Mark Heijenbrok, M.D.,‡ Wim P. A. Jansen, Ph.D.,† Miriam E. Mast, M.Sc.,* Anna L. Petoukhova, Ph.D.,* and Henk Struikmans, M.D., Ph.D.*†



Contoured GBT extends substantially further into the cranio-lateral and cranio-medial directions on MRI when compared with CT.

Interobserver variability is comparable for both imaging modalities.

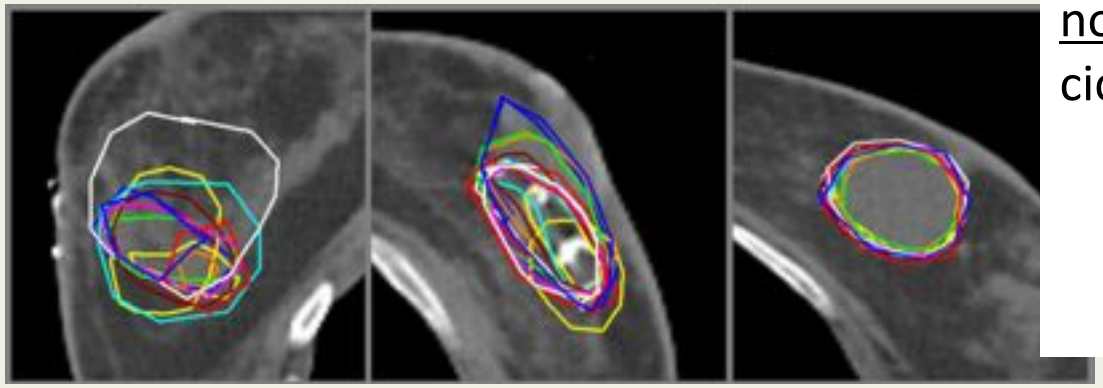
Institutions are recommended to review and discuss target volume delineations and to design supplementary guidelines if necessary.



BOOST SUL LETTO OPERATORIO

identificazione mediante clip / sieroma

non sempre corrisponde alla cicatrice chirurgica cutanea



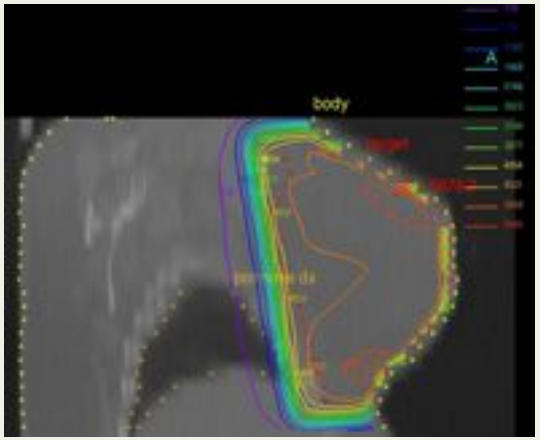
descrizione macroscopica anatomopatologica del pezzo operatorio

descrizione completa dell'intervento chirurgico (eventuale chirurgia oncoplastica)

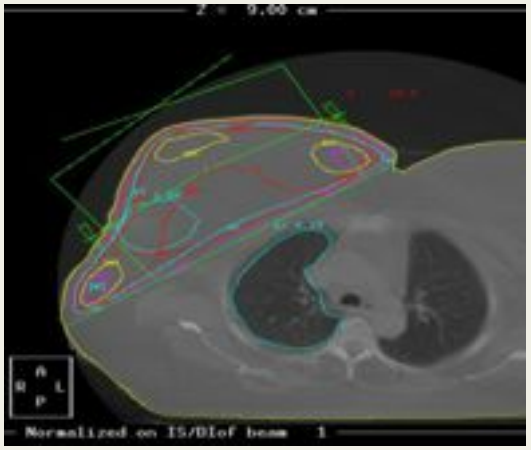
gli esami pre-intervento (mammografia)

Mammella prona

In large breasted patients dose homogeneity might be suboptimal for hot spots related to the bolus effect of overlapping breast tissue at the inframammary fold and at the axilla region or to the length of breast tissue traversed by tangential X-rays



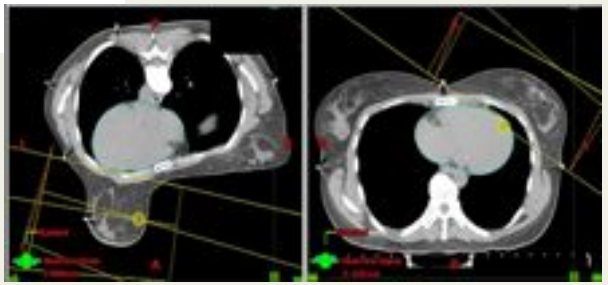
That is why these patients may show greater signs of toxicity, severe skin reactions with intense erythema, moist desquamation and edema, sometimes associated with pain



As compared to supine the prone position……

- opens the infra-mammary fold,
- reduces the length of breast tissue traversed by tangential X-rays

helps reducing volumes of over-dosage



The exposure to ionizing radiation increases the subsequent rate of ischemic heart disease, proportionally with the mean dose to the heart without apparent threshold.

Although preexisting cardiac risk factors are certainly involved, the given dose to the heart and particularly to the LADCA is the main cause of heart radio-induced disease.

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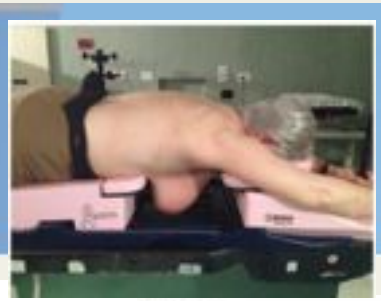
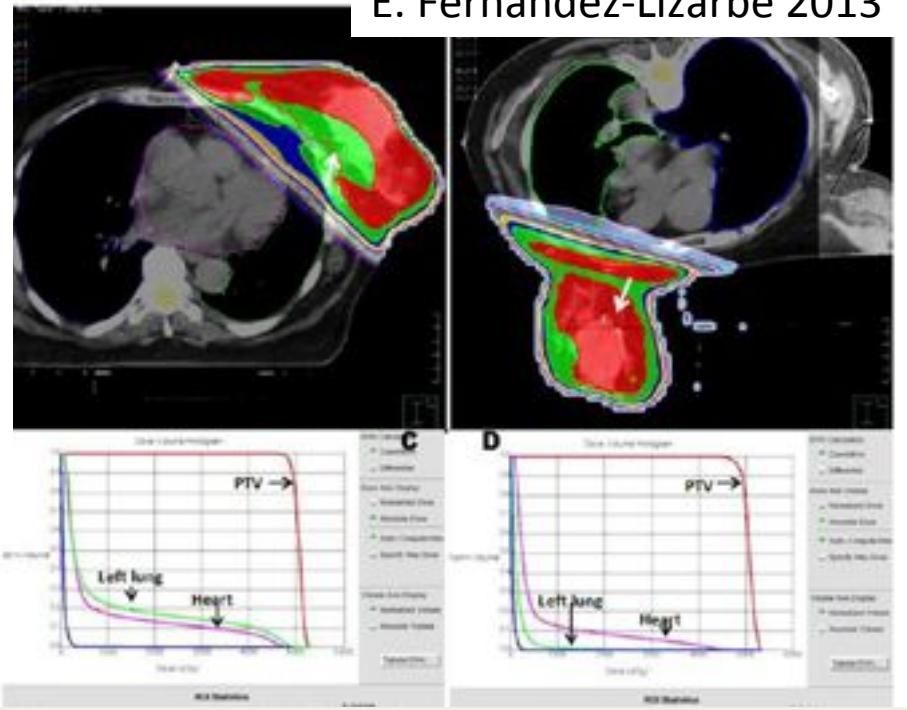
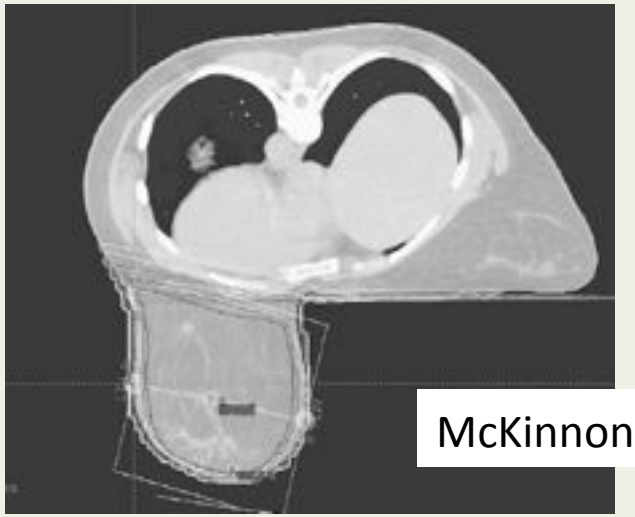


Prone position allows to elongate the treated breast away from the chest wall, favoring the exclusion from the photon beam of the heart and coronary vessels in left patients.

E. Fernandez-Lizarbe 2013





McKinnon R, 2009

Several authors have found that the prone position allows for a greater cardiac and lung volumes sparing

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Padova, 8-11 novembre

Original article

Strahlenther Onkol 2014
DOI 10.1007/s00066-014-0606-4
Received: 14 September 2013
Accepted: 9 December 2013

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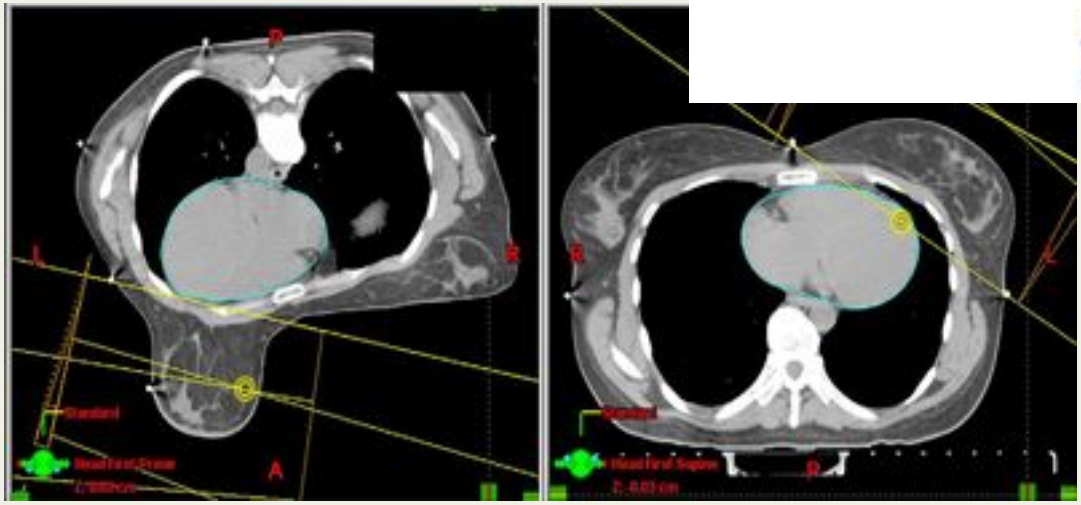
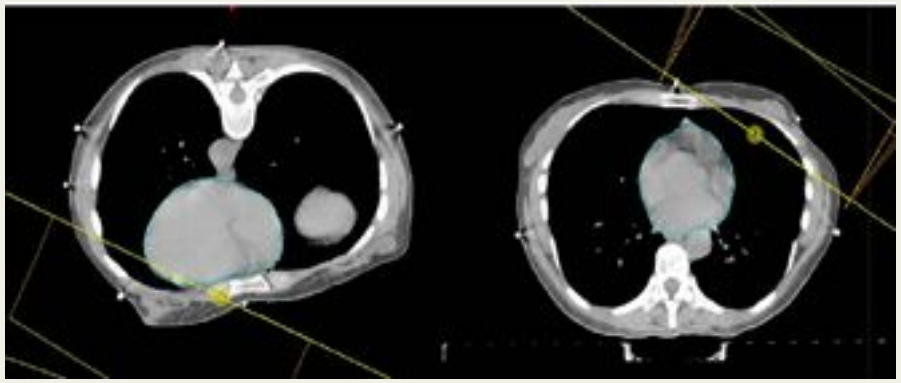
Florian Würschmidt · Solveigh Stoltenberg · Matthias Kretschmer · Cordula Petersen
Markenstraße, Hamburg, Germany

Incidental dose to coronary arteries is higher in prone than in supine whole breast irradiation

A dosimetric comparison in adjuvant radiotherapy of early stage breast cancer



Stella C. Lymberis, IJROBP 2012



It depends on the patients

Krengli et al. Radiation Oncology 2013, 8:232
http://www.ro-journal.com/content/8/1/232

2013

RADIATION ONCOLOGY

RESEARCH Open Access

Prone versus supine position for adjuvant breast radiotherapy: a prospective study in patients with pendulous breasts

Krengli M, Masini L, Caltavuturo T, Pisani C, Apicella G, Negri E, Deantonio L, Brambilla M and Gambaro G.

50 Gy two tangential photon fields (10 Gy electron boost)

CTV and PTV coverage was significantly better in supine than in prone
Lung V5, V10, and V20 were significantly lower in prone than in supine
Heart V5, V10, V20, and LAD mean and maximum dose, in the 17 patients with left breast tumor, were lower in prone than in supine position, but without statistical significance.

In our study, we analyzed women with smaller breasts and lower BMI compared to other US and North Europe series

Clinical Investigation

Prone Breast Intensity Modulated Radiation Therapy: 5-Year Results

Etin-Osa O. Osa, ……and Silvia C. Formenti, 2014

2003 and 2006
404 pts
40.5 Gy/15 fr in 3 weeks
Ccboost 0.5Gy/die
(total dose 48 Gy).

median follow-up time of 5 years, excellent cosmesis and normal tissue sparing and local control. Longer follow-up is needed to confirm the efficacy and safety of this approach.

Clinical Investigation: Breast Cancer

Prone Hypofractionated Whole-Breast Radiotherapy Without a Boost to the Tumor Bed: Comparable Toxicity of IMRT Versus a 3D Conformal Technique

Hardee ME, ……and Formenti SC , 2011

While IMRT showed considerable dosimetric benefits there was only a modest reduction in acute skin toxicity and no difference in late toxicity

These contradictory findings may be related to

- the heterogeneity of the shape and volume of the breast
- differences in the techniques of contouring the volumes of interest
- difference in therapeutic planning

which may occur in spite of the efforts made to standardize the procedures.

Non ci sono atlanti per il contornamento
Set up attento
Riproducibilità del set up

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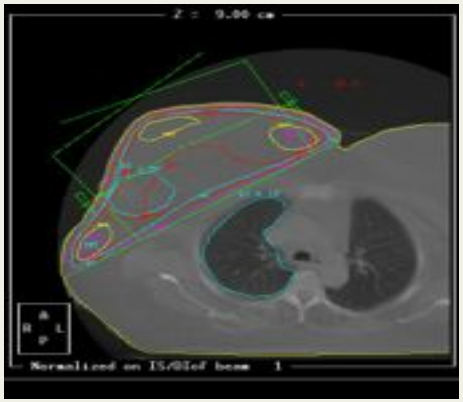
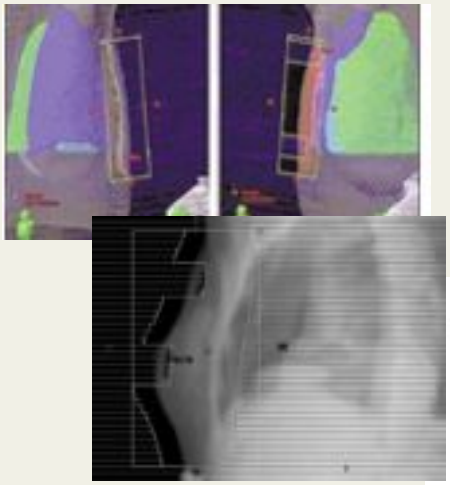
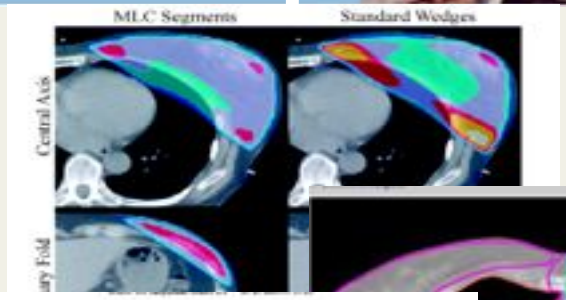
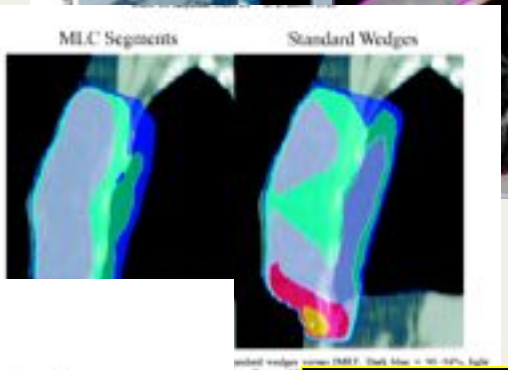
Intensità Modulata per tutte le pazienti ???





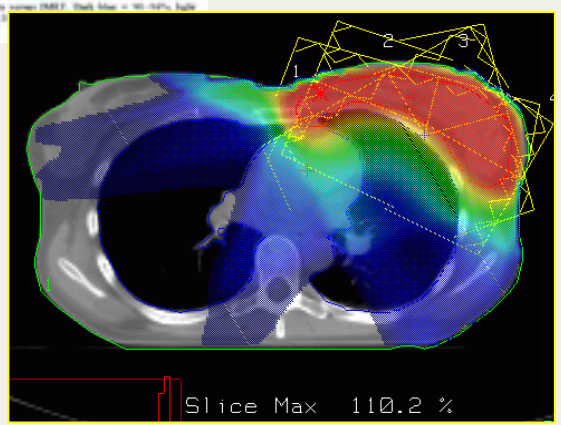




Big-time changes

Nick Mulcahy | Sep 23, 2013

ATLANTA, Georgia — Five radiation oncology practices should not be routinely used because they are not supported by evidence, according to the American Society for Radiation Oncology (ASTRO).



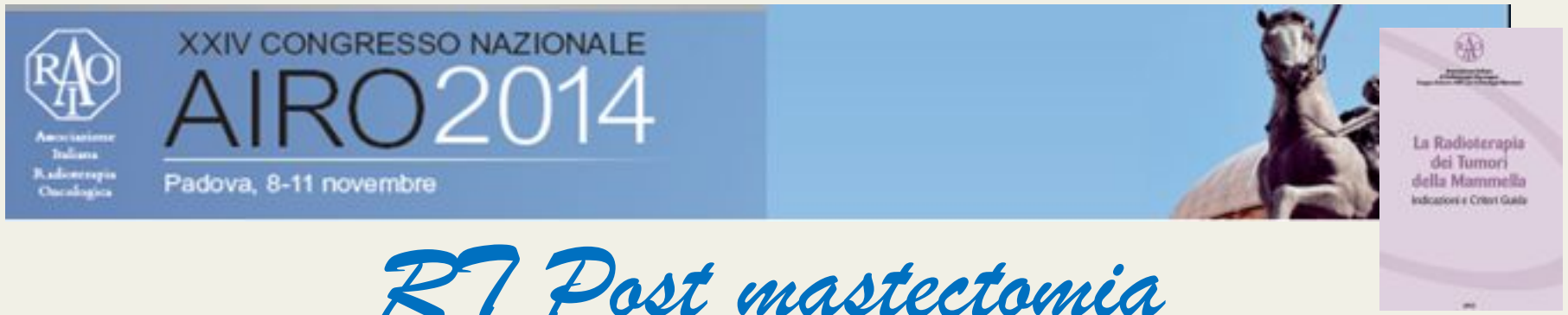
ASTRO also recommends against routine use of intensity modulated radiation therapy (IMRT) to deliver whole-breast radiotherapy as part of breast-conservation therapy.

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

RT Post mastectomia



RT Post mastectomia

Parete + linfonodi

La Radioterapia dei Tumori della Mammella. Indicazioni e Criteri Guida

Tabella 1 Radioterapia post-mastectomia: indicazioni

categoria di evidenza 1 del NCCN

età inferiore a 40-45 anni, negatività recettoriale, invasione linfo-vascolare,

• T3N+ e nei T4 qualsiasi N. T3N0 valutare in base ai fattori di rischio
• Tumore esteso alla parete toracica e/o al muscolo pettorale e/o o alla cute, indipendentemente dallo stato linfonodale
• Tumore di dimensioni fino a 5 cm (T1-2) e numero di linfonodi ascellari positivi ³ 4
• Margini positivi

2.2.2 Radioterapia dopo mastectomia totale

Nelle pazienti con malattia **T1-2 e un numero di linfonodi positivi da 1 a 3**, **sono stati identificati fattori prognostici** (età inferiore a 40-45 anni, dimensioni tumorali uguali-superiori a 3,5-4 cm, negatività recettoriale, presenza di invasione linfo-vascolare, grading elevato, rapporto tra numero di linfonodi positivi e numero di linfonodi escissi (nodal ratio- superiore al 20%-25%) **in presenza dei quali, senza RT, il rischio di recidiva locoregionale può superare il 20%,** con conseguente impatto negativo sulla sopravvivenza globale.

Pertanto, pur in assenza di risultati di studi clinici randomizzati si suggerisce di informare adeguatamente la paziente sull'**indicazione ad un trattamento radiante postoperatorio (categoria di evidenza 2B** del NCCN**).**

EBCTCG (Early Breast Cancer Trialists' Collaborative Group)*

Lancet 2014; 383: 2127–35

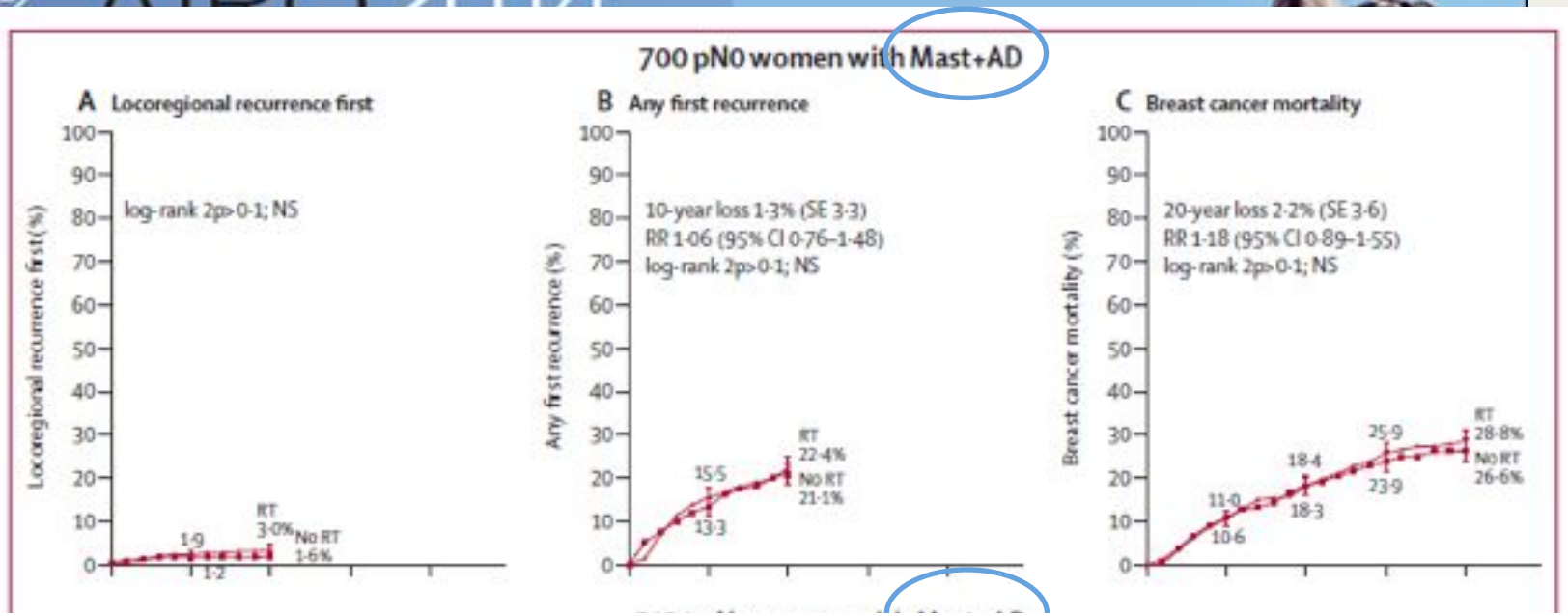
Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: meta-analysis of individual patient data for 8135 women in 22 randomised trials

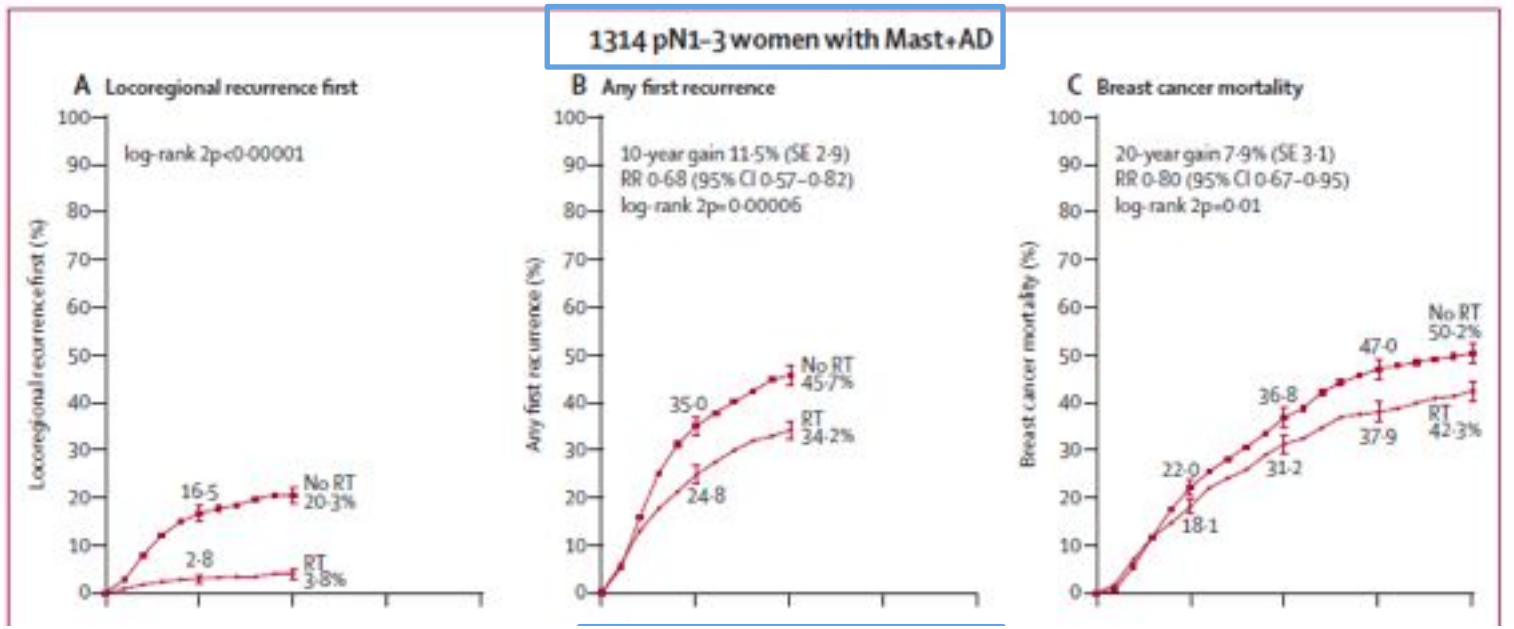
5424 Were known to have died

1964-1986

Of the 1594 women with node-negative
700 (44%) → axillary dissection
870 (55%) → axillary sampling
24 (1%) → unknown extent of axillary surgery

Of the 5821 women with node-positive disease,
3131 (54%) → axillary dissection
2541 (44%)→ axillary sampling
149 (2%) →unknown extent of axillary surgery


700 pN0 women with Mast+AD
A Locoregional recurrence first
Locoregional recurrence first (%)
log-rank 2p>0·1; NS
RT
3·0%
No RT
1·6%
1·9
1·2
B Any first recurrence
Any first recurrence (%)
10-year loss 1·3% (SE 3·3)
RR 1·06 (95% CI 0·76–1·48)
log-rank 2p>0·1; NS
RT
22·4%
No RT
21·1%
15·5
13·3
C Breast cancer mortality
Breast cancer mortality (%)
20-year loss 2·2% (SE 3·6)
RR 1·18 (95% CI 0·89–1·55)
log-rank 2p>0·1; NS
RT
28·8%
No RT
26·6%
25·9
23·9
18·4
18·3
11·0
10·6


1314 pN1–3 women with Mast+AD
A Locoregional recurrence first
log-rank 2p<0·00001
Locoregional recurrence first (%)
16·5
No RT
20·3%
2·8
RT
3·8%
B Any first recurrence
10-year gain 11·5% (SE 2·9)
RR 0·68 (95% CI 0·57–0·82)
log-rank 2p=0·00006
Any first recurrence (%)
35·0
No RT
45·7%
24·8
RT
34·2%
C Breast cancer mortality
20-year gain 7·9% (SE 3·1)
RR 0·80 (95% CI 0·67–0·95)
log-rank 2p=0·01
Breast cancer mortality (%)
22·0
18·1
36·8
31·2
47·0
37·9
No RT
50·2%
RT
42·3%

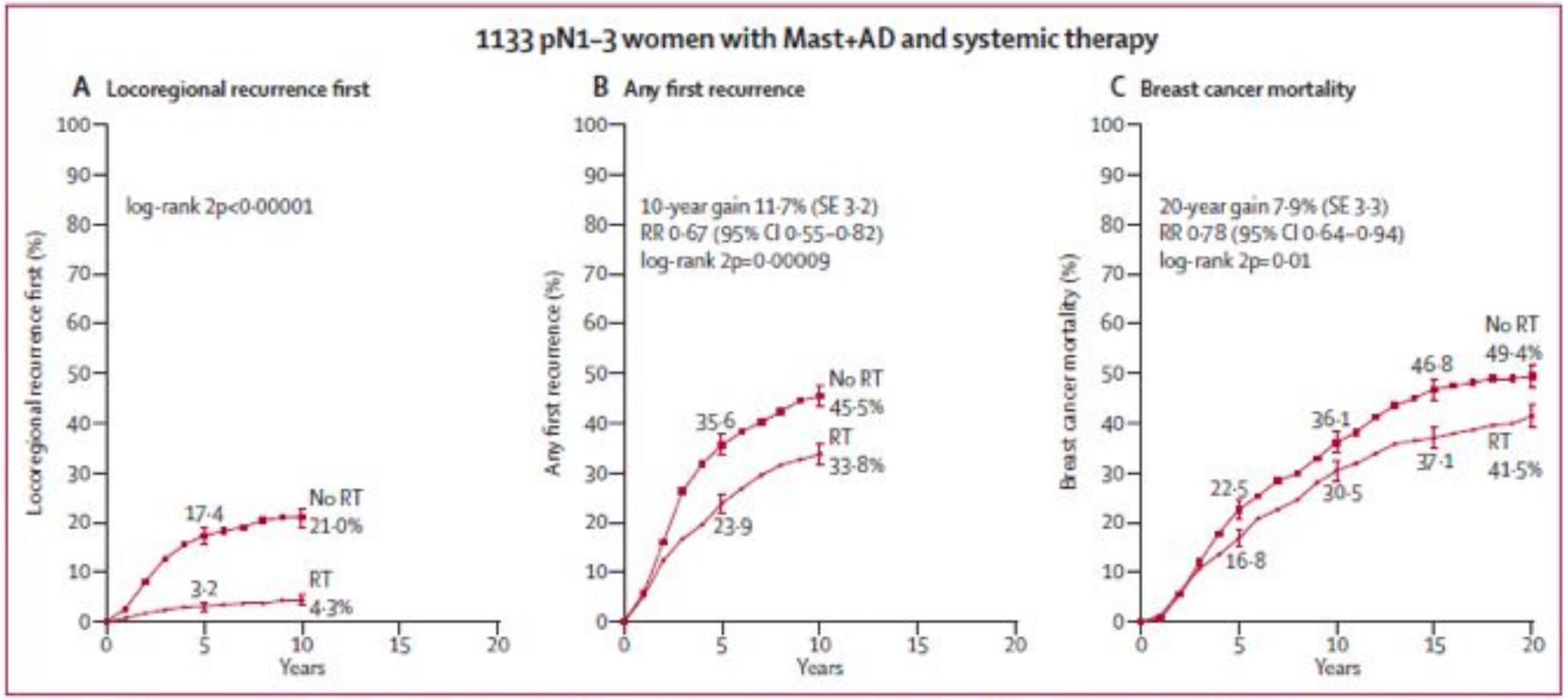


Figure 5: Effect of radiotherapy (RT) after mastectomy and axillary dissection (Mast+AD) on 10-year risks of locoregional and overall recurrence and on 20-year risk of breast cancer mortality in 1133 women with one to three pathologically positive nodes (pN1–3) in trials in which systemic therapy was given to both randomised treatment groups

There have been substantial changes in p
these women were treated. **1964-1986**

- breast screening has improved
- local therapies are more targeted
- the accuracy of lymph-node analysis has increased
- many women now receive better systemic therapy

Therefore the absolute risk of a recurrence is likely to be lower for women being considered for postmastectomy radiotherapy today than for the women in these trials and the absolute risk reductions achieved with radiotherapy are also likely to be smaller.

EBCTCG (Early Breast Cancer Trialists' Collaborative Group)*

Postmastectomy radiation in breast cancer with one to three involved lymph nodes: ending the debate

Philip Poortmans

The results of this EBCTCG meta-analysis clearly confirm that postmastectomy radiotherapy should be considered equally for patients with one to three involved axillary lymph nodes as it should be for patients with four or more affected axillary lymph nodes.

The same considerations concerning regional radiotherapy also seem to be valid for patients treated with breast-conserving therapy.

Whether this finding also applies to patients treated with more contemporary regimens remains to be seen.

We need to continue evaluating results of the contemporary multidisciplinary approach

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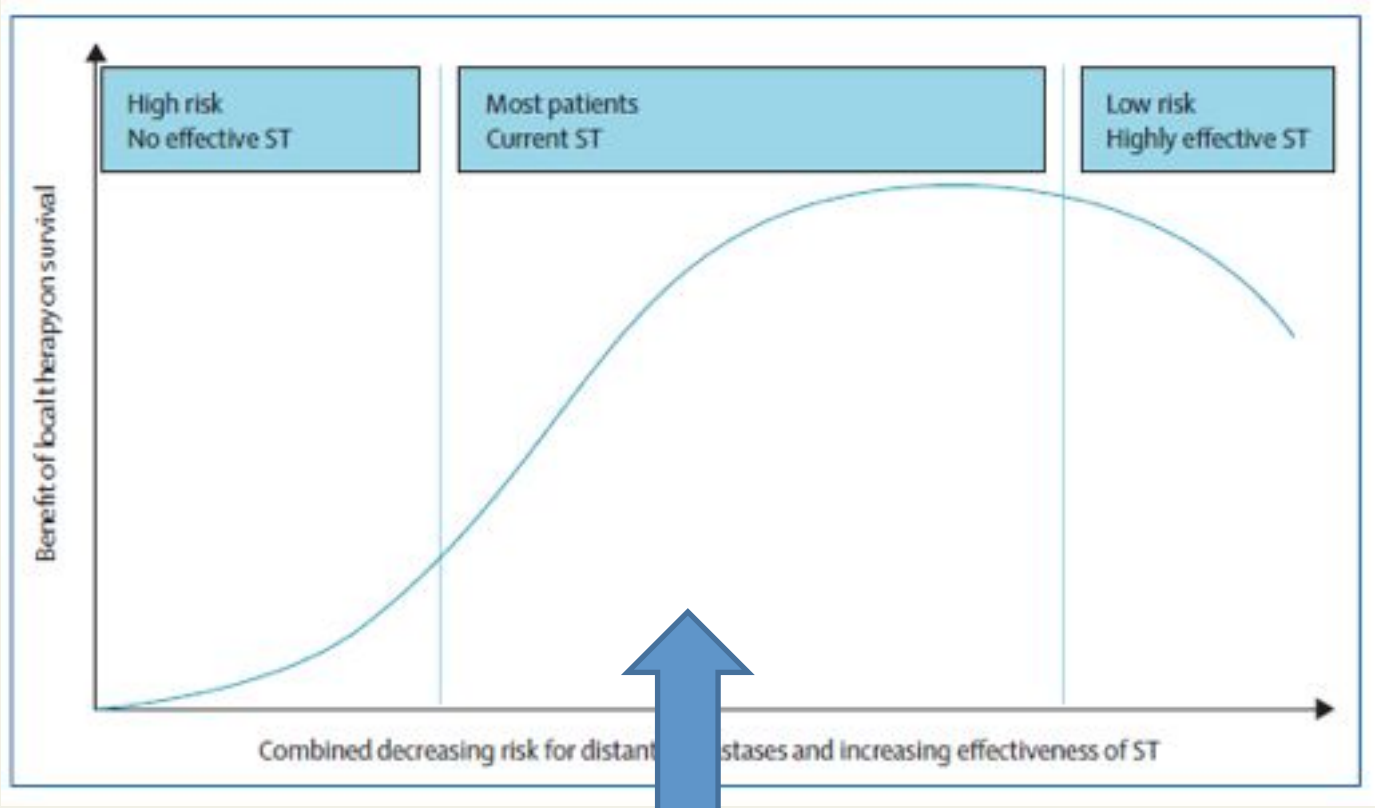
Philip Poortmans



without effective **systemic no expected to benefit** from improving locoregional treatments.

multidisciplinary approach

Treatment **de-intensification** (surgery, RT or systemic therapy)

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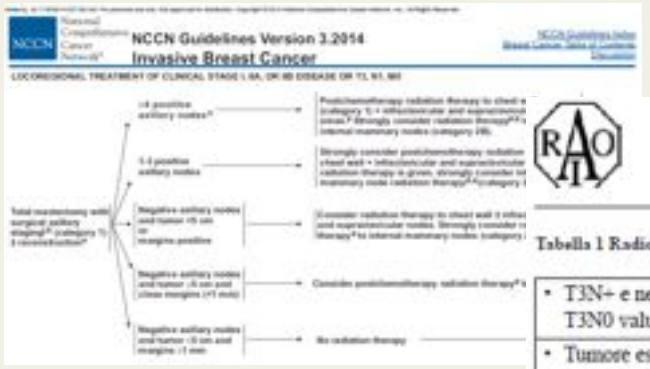
Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Stazioni linfonodali



DEGRO practical guidelines for radiotherapy of breast cancer IV

Radiotherapy following mastectomy for invasive breast cancer

La Radioterapia dei Tumori

Tabella 1 Radioterapia post-mastectomia: indicazioni

• T3N+ e nei T4 qualsiasi N. T3N0 valutare in base ai fattori di rischio
• Tumore esteso alla parete toracica e/o al muscolo pettorale e/o o alla cute, indipendentemente dallo stato linfonodale
• Tumore di dimensioni fino a 5 cm (T1-2) e numero di linfonodi ascellari positivi ³ 4
• Margini positivi

Dissezione ascella

N – NO RT

N + > 4→ RT delle stazioni linfonodali

N + 1-3→ RT soprattutto se fattori prognostici sfavorevoli (G3, OR neg, Ki67, LVI, nodal ratio, ECE; età…)

Biopsia N sentinella

N- → NO RT (no dissezione)

N+ → dissezione ascellare 1-2 livello /3 se necessario

N+ → non dissezione

VOLUME 29 · NUMBER 34 · DECEMBER 1 2011
JOURNAL OF CLINICAL ONCOLOGY
COMMENTS AND CONTROVERSIES

Positive Sentinel Nodes Without Axillary Dissection: Implications for the Radiation Oncologist

Bruce G. Haffty,

Z0011→ pts disease characteristics

median age 55 years,
70% had T1 tumors,
82% had estrogen receptor–positive disease,
71% had only one positive SLN,
44% micrometastasis

Rischio per dimensioni della neoplasia, per fattori biologici…..

Table 1. Suggested Approach for Radiation Field Design in Patients With Sentinel Node–Positive Disease Not Undergoing Axillary Lymph Node Dissection

Clinical Scenario	No. of Positive Sentinel Nodes	Total No. of Sentinel Nodes Sampled	Probability of Additional Nodes* (%)	Probability of Additional Nodes† (%)	Probability of Four or More Nodes Involved‡ (%)	Field Design
IDC, 1.0 cm, ER positive, LVI negative	1 (IHC only)	3	3	8	< 1	Tangents only
IDC, 1.8 cm, G3, ER positive, LVI negative, unifocal	1 (macro)	2	27	24	2	High tangents
IDC, 2.0 cm, ER negative, LVI positive	2 (macro)	2	63	55	30	High tangents/consider full nodal treatment
ILC, 4.0 cm, ER positive, multifocal, LVI negative	2 (macro)	2	77	64	40	High tangents/consider full nodal treatment
IDC, 3 cm, ER negative, LVI positive, multifocal	3 (macro with ENE)	3	78	95	80	Full nodal treatment

*On the basis of the Memorial Sloan-Kettering Cancer Center nomogram.[19]
†On the basis of the MD Anderson Cancer Center nomogram.[18]
‡Katz et al.[23]

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Padova, 8-11 novembre

Radiotherapy or surgery of the axilla after a positive sentinel node in breast cancer (EORTC 10981-22023 AMAROS): a randomised, multicentre, open-label, phase 3 non-inferiority trial

Mila Donker, Geertjan van Tienhoven, Marieke E Straver, Philip Meijnen, Cornelis J H van de Velde, Robert E Mansel, Luigi Cataliotti, A Helen Westenberg, Jean H G Klinkenbijl, Lorenzo Orzalesi, Willem H Bouma, Huub C J van der Mijle, Gerard A P Nieuwenhuijzen, Sanne C Veltkamp, Leen Slaets, Nicole J Duez, Peter W de Graaf, Thijs van Dalen, Andreas Marinelli, Herman Rijna, Marko Snoj, Nigel J Bundred, Jos W S Markus, Yazid Belkacemi, Patrick Petignat, Dominic A X Schinagl, Corneel Coens, Carlo G M Messina, Jan Bogaerts, Emiel J T Rutgers

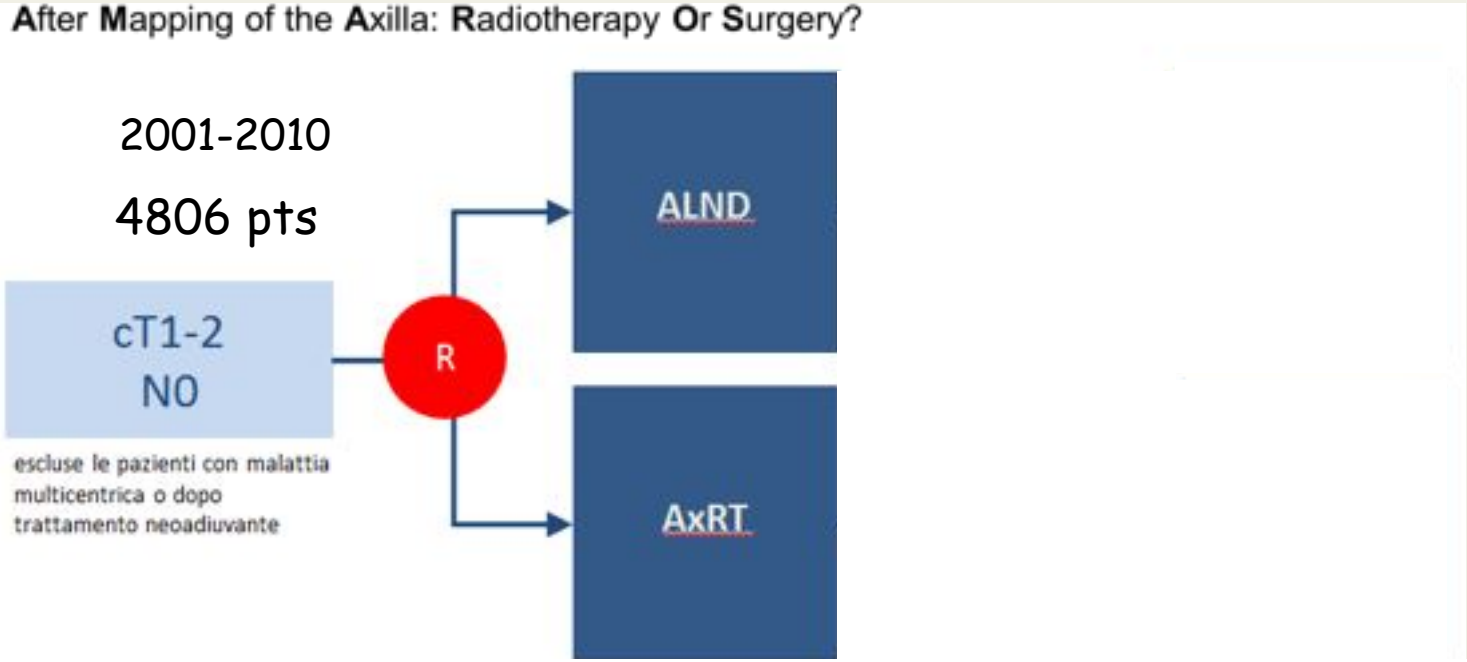
The AMAROS trial was conducted in **34 sites** located in **9 countries**: The Netherlands, Italy, United Kingdom, France, Slovenia, Switzerland, Poland, Turkey, Israel.

EORTC 10981-22023 AMAROS

After **M**apping of the **A**xilla: **R**adiotherapy **O**r **S**urgery?

EORTC 10981-22023 AMAROS

After **M**apping of the **A**xilla: **R**adiotherapy **O**r **S**urgery?



Ipotesi : radioterapia ascellare offre le stesse probabilità di controllo locale e sopravvivenza – con meno effetti collaterali – rispetto alla dissezione ascellare.

Obiettivo primario: dimostrare la «non-inferiorità» in termini di **recidive ascellari** (2% vs <4%)

Obiettivi secondari : confrontare **OS e DFS**; linfedema, funzionalità della spalla e QoL

- Sia dissezione ascellare sia la RT ascellare offrono un ottimo livello di controllo loco-regionale

ma pochi eventi, troppo pochi

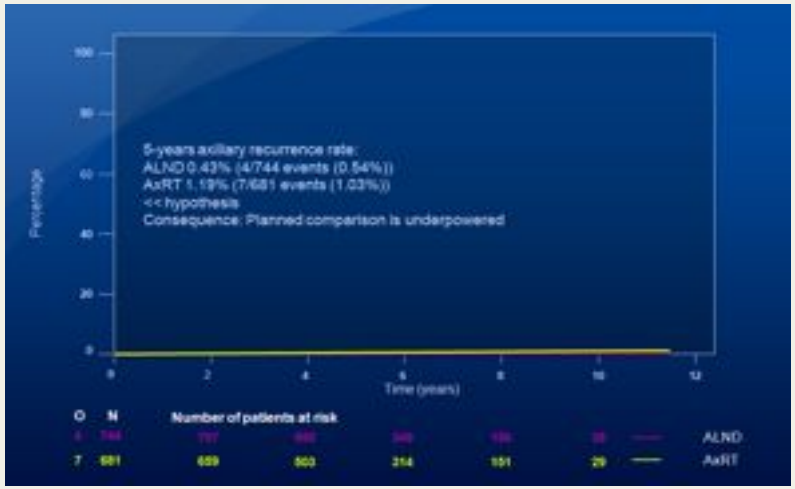
per essere significativi

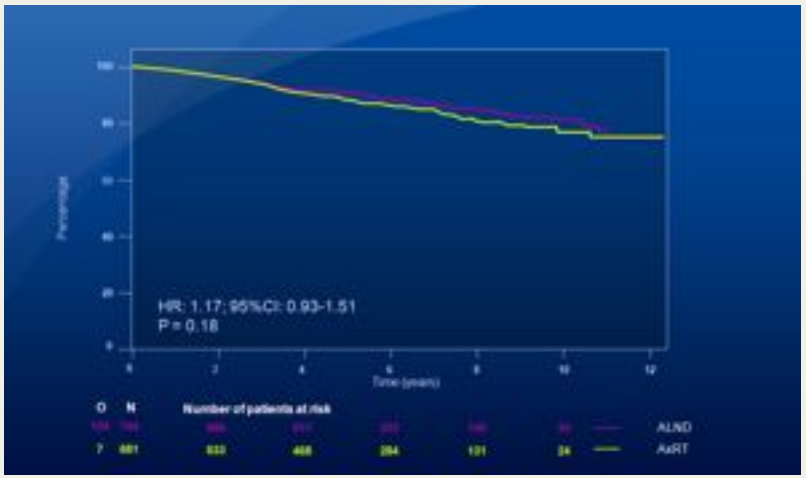
- Non differenze in DFS e OS con le due metodiche di trattamento

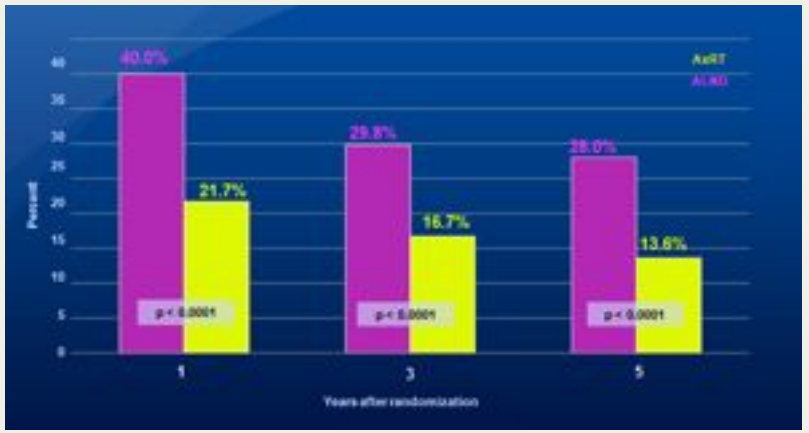
ma follow up breve....

- Meno effetti collaterali (linfedema) con la RT

Median follow-up → 6·1 years







- Amaros: pochi eventi (statisticamente sottopotenziato) ad oggi risultati da confermare (con FU più lungo)

- RT (e non dissezione) in tutte le pazienti senza considerare alcun fattore biologico e il rischio correlato ?

No dissezione?
RT? Quale dose?

40 anni pT1c SN 2+ Triple negative
65 anni pT1c SN 2+ luminal A

RT? E' davvero indicata?
E' un over-treatment (Giuliano..)
E' un under-treatment
(se ci sono altri N non asportati)

Accurata analisi dei dati di letteratura

Accurata analisi dei dati relativi alla pz

Discussione interdisciplinare

Selezione del trattamento ottimale

Consensus: "Trattamento dell' ascella"

attualità in senologia

Firenze, Palazzo dei Congressi, 22-24 gennaio 2014

In caso di LS macrometastatico dopo chirurgia conservativa (paziente quindi candidata a RT mammaria) se i fattori biologici sono favorevoli si ritiene che il trattamento dell'ascella (dissezione o RT delle stazioni linfonodali) possa essere omesso in base ai risultati dello studio Z0011 (A. Giuliano e Coll.) ?

In caso di LS macrometastatico si ritiene indicata RT o chirurgia ascellare?

SNB + → dissezione

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

RT dopo CT neoadiuvante

estensione iniziale di malattia

tipo di chirurgia (conservativa o mastectomia)

risposta alla CT neoadiuvante

XXIV CONGRESSO NAZIONALE
AIRO20
Padova, 8-11 novembre

ORIGINAL ARTICLE – BREAST ONCOLOGY

Recommendations from an International Consensus Conference on the Current Status and Future of Neoadjuvant Systemic Therapy in Primary Breast Cancer

Manfred Kaufmann[1], Gunter von Minckwitz[2], Efthterios P. Mamounas[3], David Cameron[4], Lisa A. Carey[5], Massimo Cristofanilli[6], Carsten Denkert[7], Wolfgang Eiermann[8], Michael Gnant[9], Jay R. Harris[10], Thomas Karn[1], Cornelia Liedtke[11], Davide Mauri[12], Roman Rouzier[13], Eugen Ruckhaeberle[1], Vladimir Semiglazov[14],

Ann Surg Oncol (2012) 19:1508–1516

When and How Should Radiotherapy Be Performed?

in base al tipo di chirurgia….

After BCS, irradiation of the breast is indicated

Hypofractionated protocols may be considered according to guidelines for adjuvant treatment.

Data on the need for radiotherapy after mastectomy are still being collected.

XXIV CONGRESSO NAZIONALE AIRO 2014

Ann Surg Oncol (2012)| 19:1508–1516

ORIGINAL ARTICLE – BREAST ONCOLOGY

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Radiotherapy...

...is guided by initial clinical stage and by pathologic findings at the time of surgery.....

patients with locally advanced cancer or inflammatory breast cancer

and

all node positive patients after NST

Additional studies are needed on postmastectomy RT in node-negative patients after NST.

XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

VOLUME 30 · NUMBER 32 · NOVEMBER 10 2012
JOURNAL OF CLINICAL ONCOLOGY
ORIGINAL REPORT

Predictors of Locoregional Recurrence After Neoadjuvant Chemotherapy: Results From Combined Analysis of National Surgical Adjuvant Breast and Bowel Project B-18 and B-27

Eleftherios P. Mamounas, Stewart J. Anderson, James J. Dignam, Harry D. Bear, Thomas B. Julian, Charles E. Geyer Jr, Alphonse Taghian, D. Lawrence Wickerham, and Norman Wolmark

in addition to **age** and
clinical tumor characteristics
available **before** neoadjuvant
chemotherapy,
pathologic response in the breast and pathologic axillary nodal status
have a major impact on the rates and patterns of LRR.

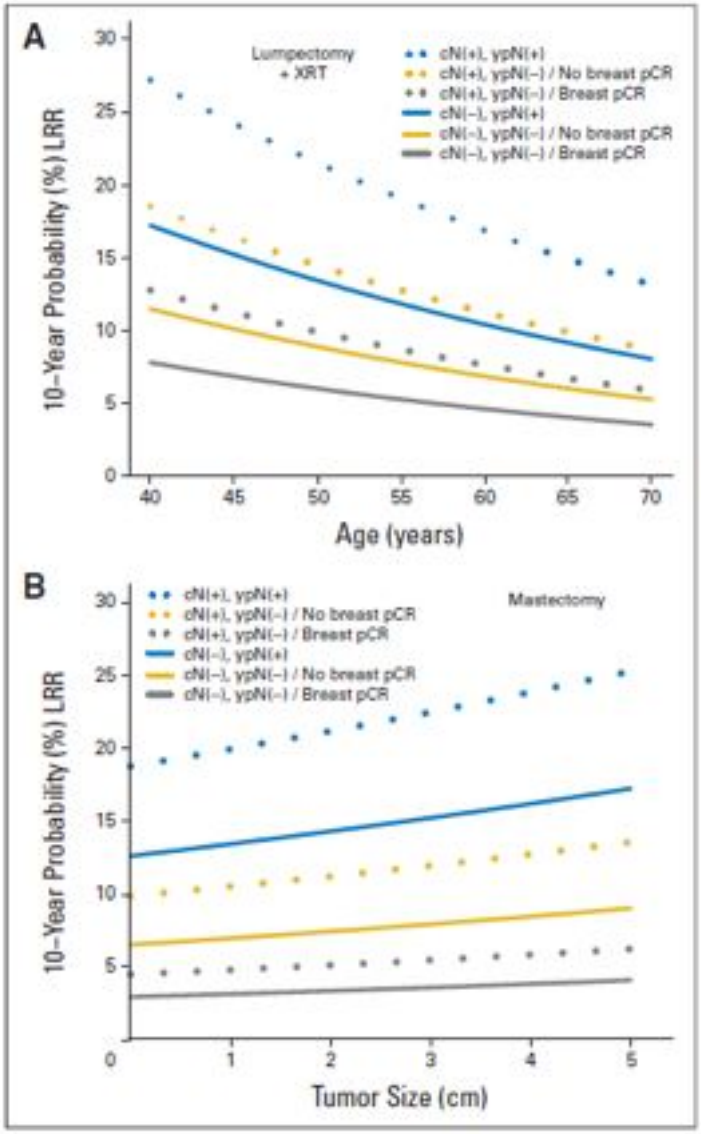

Fig 4. Nomogram to predict 10-year risk of locoregional recurrence (LRR) in patients treated with (A) lumpectomy plus breast external radiotherapy (XRT) after neoadjuvant chemotherapy or (B) mastectomy after neoadjuvant chemotherapy. cN, clinical nodal status [before neoadjuvant chemotherapy]; pCR, pathologic complete response [after neoadjuvant chemotherapy]; ypN, pathologic nodal status [after neoadjuvant chemotherapy].

Indicazioni, dosi e volumi clinici nell'irradiazion della patologia mammaria: stato dell'arte

RADIOTERAPIA DOPO CHEMIOTERAPIA NEOADIUVANTE

Malattia localmente avanzata inoperabile

è sempre **indicata la RT postoperatoria** (parete toracica o mammella e stazioni linfonodali)

Malattia iniziale (IIA, IIB) o localmente avanzata operabile

difficoltà a dare indicazioni precise alla RT……

studi retrospettivi
prospettici di PST non disegnati per valutare RT

XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

Neoadjuvant CT and Sentinel Lymph Node Biopsy

XXIV CONGRESSO NAZIONALE AIRO 2014

Neoadjuvant CT and Sentinel Lymph Node Biopsy

Nelle pazienti sottoposte a CT neo-adiuvante la dissezione ascellare rimane uno standard
Lyman GH, JCO 2005

possibile alterazione del drenaggio linfatico per detriti cellulari → difficoltà identificazione SN
Sharkey FE, 1996

regressione non uniforme della malattia ascellare → accuratezza
Pecha; cancer 2011

tuttavia…

Neoadjuvant CT and Sentinel Lymph Node Biopsy

VOLUME 32 · NUMBER 13 · MAY 1 2014

JOURNAL OF CLINICAL ONCOLOGY

ASCO SPECIAL ARTICLE

Sentinel Lymph Node Biopsy for Patients With Early-Stage Breast Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update

Gary H. Lyman, Sarah Temin, Stephen B. Edge, Lisa A. Newman, Roderick R. Turner, Donald L. Weaver, Al B. Benson III, Linda D. Bosserman, Harold J. Burstein, Hiram Cody III, James Hayman, Cheryl L. Perkins, Donald A. Podoloff, and Armando E. Giuliano

RECOMMENDATION 3.4: PREOPERATIVE/ NEOADJUVANT SYSTEMIC THERAPY

Clinicians **may offer SNB** for women who have operable breast cancer and the following circumstance: **preoperative/ neoadjuvant systemic therapy** (NACT).

Type: evidence based; **benefits outweigh harms**. Evidence quality: intermediate. Strength of recommendation: moderate.

VOLUME 32 · NUMBER 13 · MAY 1 2014
JOURNAL OF CLINICAL ONCOLOGY
ASCO SPECIAL ARTICLE

Sentinel Lymph Node Biopsy for Patients With Early-Stage Breast Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update

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Neoadjuvant CT and Sentinel Lymph Node Biopsy

- **SNB is not recommended** in patients with **T4d/inflammatory** breast cancer who have received NACT (**regardless of patients' clinical response to NACT),**

- **data are insufficient** to recommend SNB in patients with **T4abc** breast cancer whose cancer has been clinically **downstaged after receiving NACT.**

Neoadjuvant CT and Sentinel Lymph Node Biopsy

- NO SNB in
  - cN3
  - pN+ at the end of Neo-adjuvant CT

Neoadjuvant CT and Sentinel Lymph Node Biopsy

VOLUME 32 · NUMBER 13 · MAY 1 2014

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Neoadjuvant chemotherapy, Timing SND and controversies

Although most of the included studies are limited by small size, retrospective design, and wide variation in results,

the sentinel identification rates and false-negative rates determined were similar to those seen in patients undergoing SLNB **before** chemotherapy

Kelly AM, Acad Radiol 2009
Xing Y, Br J Surg B 2006
van Deurzen CH, Eur J Cancer 2009
Tan VK, J Surg Oncol 2011
Zhang L, Surg Oncol 2012

Neoadjuvant chemotherapy, Timing SND and controversies

Accuracy SND **AFTER** neoadjuvant CT

Although most of the included studies are limited by small size, retrospective design, and wide variation in results,

the sentinel identification rates and false-negative rates determined were similar to those seen in patients undergoing SLNB before chemotherapy

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Xing Y, Br J Surg B 2006
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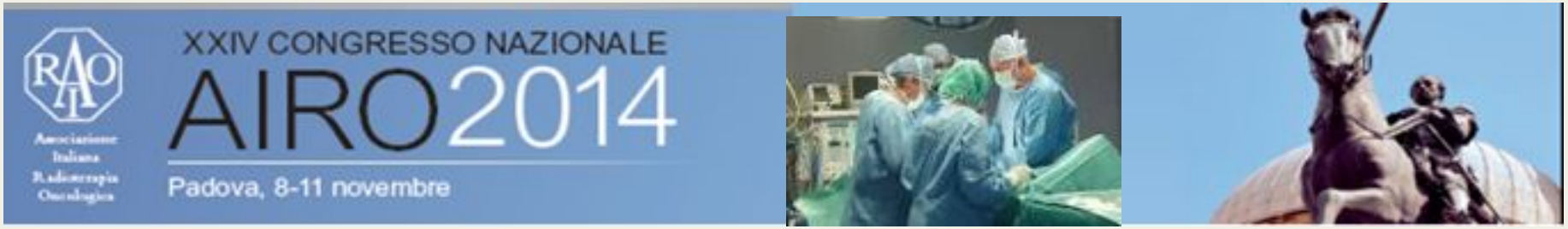
Tan VK, J Surg Oncol 2011
Zhang L, Surg Oncol 2012


Breast Care
Review Article
2014
Local Treatment of the Axilla in Early Breast Cancer: Concepts from the National Surgical Adjuvant Breast and Bowel Project B-04 to the Planned Intergroup Sentinel Mamma Trial



Neoadjuvant chemotherapy, Timing SND and controversies

There is growing evidence that SLNB **following** neoadjuvant systemic therapy in patients without evident cancer in their axilla ***(cN0)*** is acceptable

an additional surgical procedure could therefore be avoided in these women…… *if pN0*

Kelly AM, Acad Radiol 2009
Xing Y, Br J Surg B 2006
van Deurzen CH, Eur J Cancer 2009
Tan VK, J Surg Oncol 2011

Biopsia del LNS prima dell'inizio della Chemioterapia

- Minor morbilità
- Minori costi
- Minor durata intervento, fattibile in regime ambulatoriale
- Se **LNSB negativo** → evita la dissezione al termine della chemio
- **Maggiori % di identificazione** e **minori falsi negativi**

Consigliabile

- ovviamente in cN0
- anche se richiede due procedure chirurgiche
- anche se richiede la dissezione ascellare dopo la chemioterapia neoadiuvante se **LNSB + prima della chemio** (senza poter sapere se i linfonodi si sono negativizzati con il trattamento sistemico)

Biopsia del LNS prima dell'inizio della Chemioterapia

In una paziente candidata a chemioterapia neoadiuvante e con cavo ascellare clinicamente negativo (palpazione e/o ultrasonografia, con citologico negativo), la biopsia chirurgica del linfonodo sentinella è **considerata efficace** come procedura di stadiazione patologica prima dell'avvio della chemioterapia.

Ma …

Il **panel di esperti** non è d'accordo con questa indicazione … se si considera valida l'opzione della valutazione del linfonodo sentinella dopo CT.

Documento di consenso: "Il trattamento dell'ascella" CONCLUSIONI

Terapia sistemica primaria - Linfonodo sentinella: si/no, quando?

Biopsia del LNS dopo dell'inizio della Chemioterapia

La biopsia del linfonodo sentinella dopo chemioterapia neoadiuvante in una paziente con linfonodi ascellari clinicamente positivi alla stadiazione iniziale è una procedura utilizzabile in centri di elevata esperienza .

E' utilizzabile in pazienti che abbiano ottenuto una negativizzazione clinica dei linfonodi ascellari a seguito di chemioterapia neoadiuvante deve essere preceduta da una valutazione ecografica dei linfonodi ascellari con esame citologico (che deve essere negativo).


SciVerse ScienceDirect

EJSO

Review

Timing of the sentinel lymph node biopsy in breast cancer patients receiving neoadjuvant therapy – Recommendations for clinical guidance

Dieuken B.Y. Fontein, Willemien van de Water, J. Sven D. Mieog, Gerrit-Jan Liefers, Cornelis J.H. van de Velde*

20-44% of node-positive patients achieves a complete pathological response in the axilla with NAC and may thereby be spared an ALND, with its well-known comorbidities.

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

RT Parete toracica +/- Stazioni linfonodali

Ct neoadiuvante….

Biopsia del lindonodo/i sentinella

LABC o malattia voluminosa

Documento di consenso: "Il trattamento dell' ascella" CONCLUSIONI

Le indicazioni per la RT loco-regionale sono ancora **in evoluzione.**

LABC

- Lo stadio **LABC (T3-T4 e/o N2-N3)** ha indicazione alla **RT loco-regionale dopo CT neoadiuvante e chirurgia**, indipendentemente dalla risposta clinica e anatomo-patologica ottenuta, ai fini di ridurre l'elevato (20%) rischio di LR**.**

In caso di **risposta patologica completa**, in mancanza di adeguati studi prospettici, **non vi è parere unanime sulla necessità della dissezione né** sulla necessità di una **radioterapia estesa anche alle stazioni linfonodali**, che si fonda assolutamente sulla attendibilità della procedura chirurgica descritta.

- Si ritiene essenziale la valutazione del **singolo caso** nella globalità dei suoi aspetti e la **discussione multisciplinare.**

Documento di consenso: "Il trattamento dell'ascella" CONCLUSIONI

Radioterapia dopo terapia primaria per NEOPLASIA VOLUMINOSA ma operabile alla diagnosi

- Per lo **stadio clinico II (cT1-2 cN0-1) con ypN0 la RT** dovrebbe essere eseguita solo **sulla mammella dopo chirurgia conservativa** (NCCN 2013)

- **cT3 cN0** non sono disponibili dati sufficienti in letteratura e le casistiche sono poco numerose e retrospettive…. e la RT potrebbe essere limitata alla regione mammaria se ovviamente ypN0.

- In caso di **ypT0-2 ypN1 (LRR 15%) o yp≥N2 (LRR>20%), si deve considerare la RT linfonodale,** soprattutto in caso di ulteriori fattori di rischio quali la **LVI, il G3, l'alto nodal ratio, età giovane (<40-45 ani).**

Consensus: "Trattamento dell' ascella"

attualità in senologia
Firenze, Palazzo dei Congressi, 22-24 gennaio 2014

In pazienti avviate a Chemioterapia neoadiuvante si ritiene eseguibile la biopsia del linfonodo sentinella?	**SI: 90%**	**NO: 10%**
In pazienti avviate a Chemioterapia neoadiuvante si ritiene opportuna la biopsia del SN:	**prima della CT: 20%**	**dopo la CT: 80%**

Parere favorevole alla Biopsia del SN da eseguirsi dopo la CT, ma….

C sus: “Trattamento dell’ ascella”

attualità in senologia
Firenze, Palazzo dei Congressi, 22-24 gennaio 2014

In caso di pazienti avviate a Chemioterapia neoadiuvante con presentazione cT3-T4 cN1-2, dopo la negativizzazione clinica ottenuta dalla chemioterapia neoadiuvante si ritiene opportuno eseguire biopsia del linfonodo sentinella ?

NO BIOPSIA SN IN LABC

NO ALL’ASTENSIONE DEL TRATTAMENTO ASCELLA IN LABC IN CR

Consensus: "Trattamento dell' ascella"

attualità in senologia

Firenze, Palazzo dei Congressi, 22-24 gennaio 2014

Consensus: "Trattamento dell' ascella"

attualità in senologia

Firenze, Palazzo dei Congressi, 22-24 gennaio 2014

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Parete toracica e Stazioni linfonodali

…..si considera adeguata, una dose di 50,0-50,4 Gy,

Non sono al momento disponibili dati certi sul trattamento ipofrazionato

Non esiste accordo definitivo sul ruolo del boost sulla cicatrice

XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

Indicazioni, dosi e volumi clinici nell'irradiazi… patologia mammaria: stato dell'arte

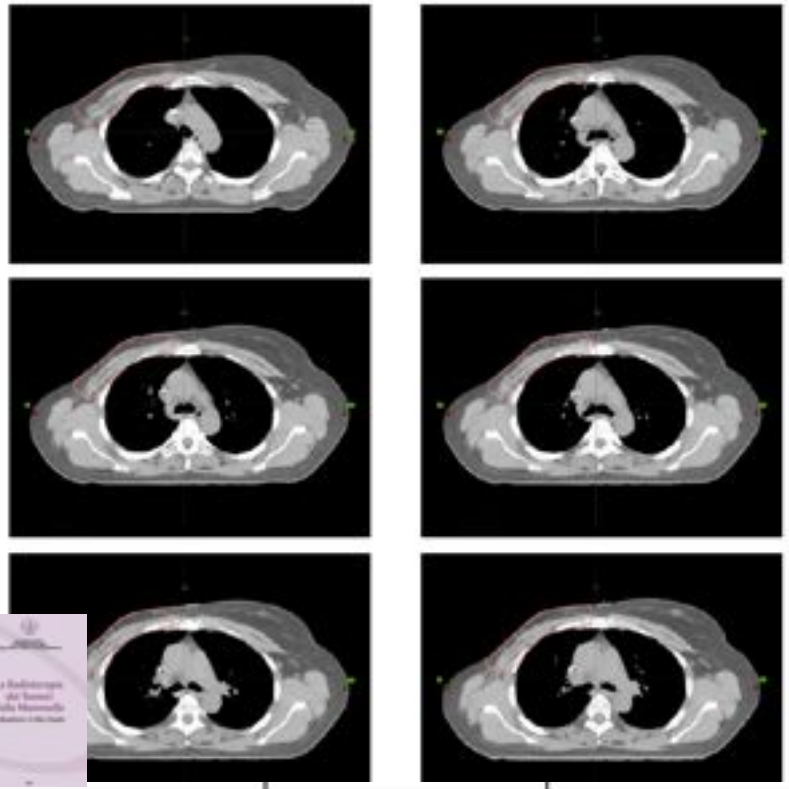
Parete toracica e Stazioni linfonodali

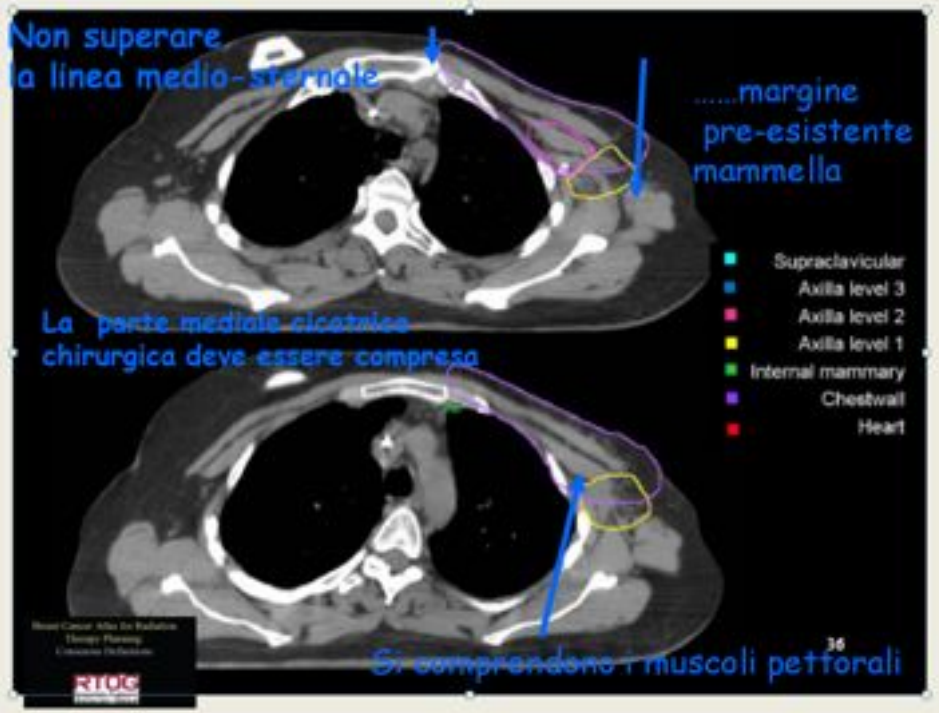
Sempre maggiore attenzione nella pianificazione

Sempre maggior attenzione e accuratezza nel Contornamento

Permane il riferimento a documenti datati, ma validati (ICRU)

Rafforzata importanza degli atlanti





Parete toracica	Giunzione sterno-claveare	Linea medio-ascellare, fino al muscolo latissimo del dorso escluso	Bordo caudale della testa della clavicola	Limite palpabile / limite del tessuto ghiandolare controlaterale su immagini TC	Cute compresa. Cicatrice chirurgica inclusa interamente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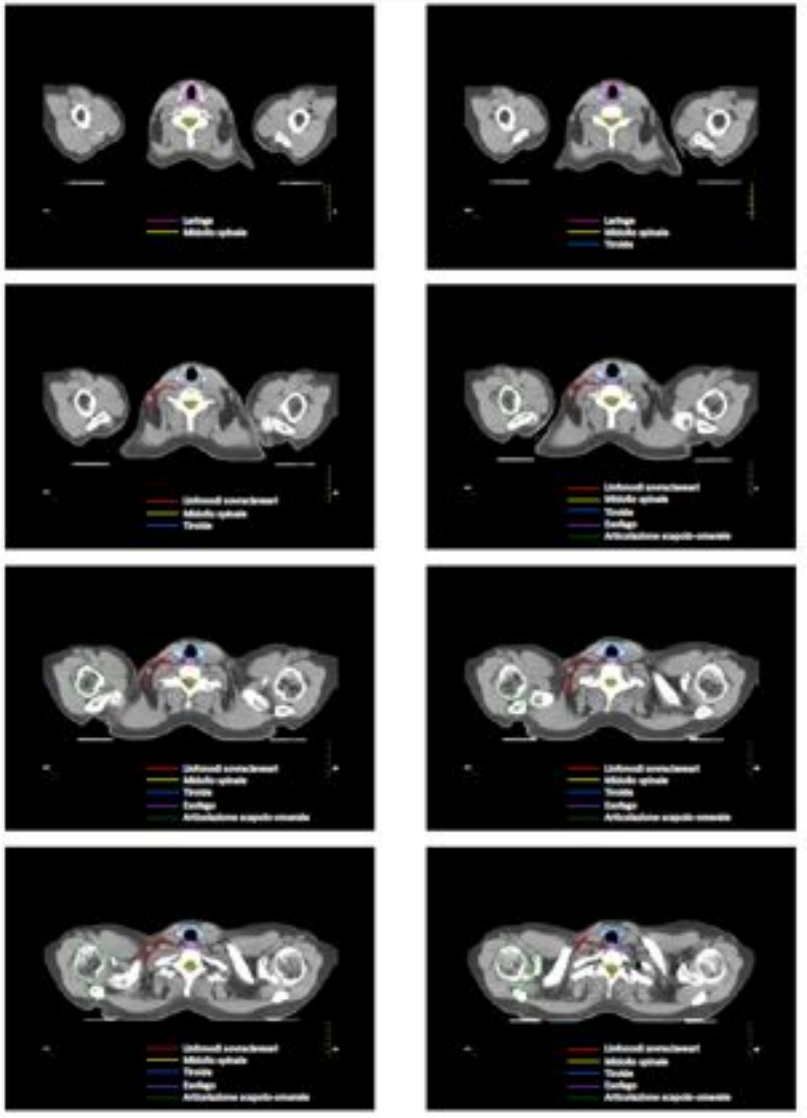



La Radioterapia
dei Tumori
della Mammella
Indicazioni e Criteri Guida

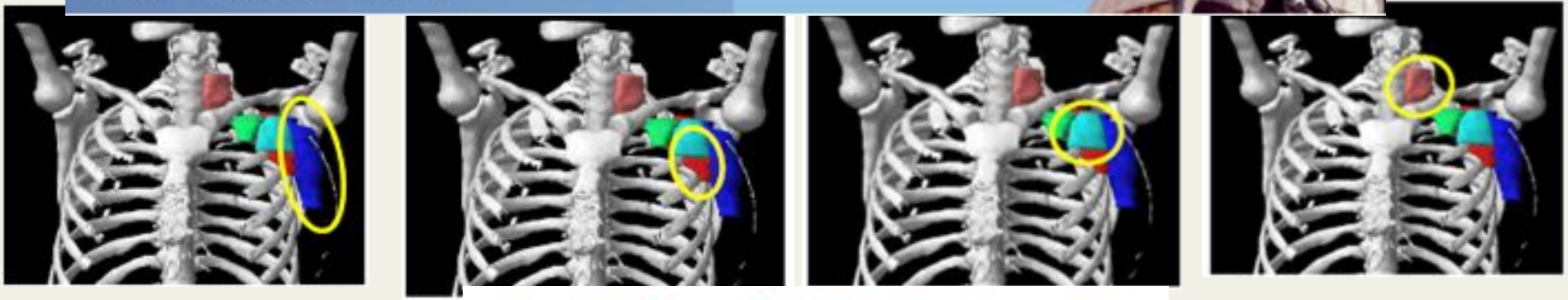
XXIV CONGRESSO NAZIONALE

AIRO2014

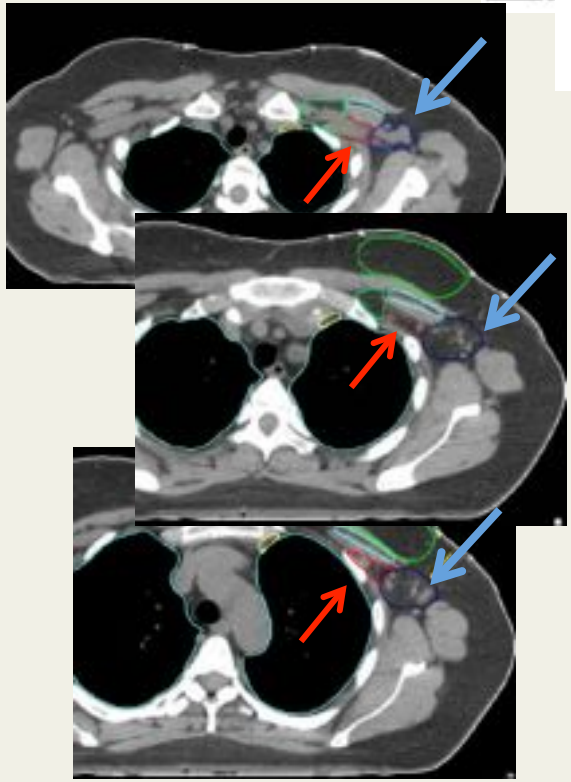
Padova, 8-11 novembre

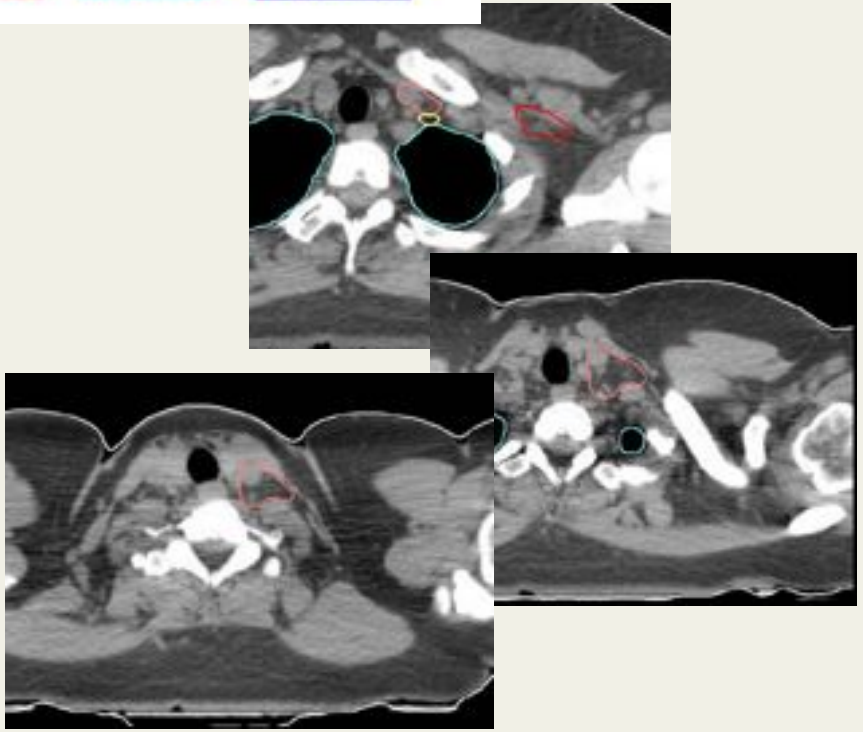
Courtesy Prof Poortmans

Presentation of the ESTRO consensus guideline

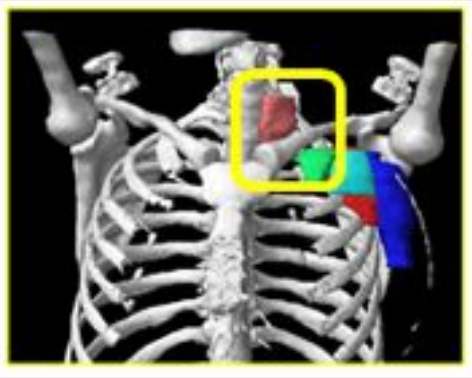


level 3 - level 2 – Rotter - level 1



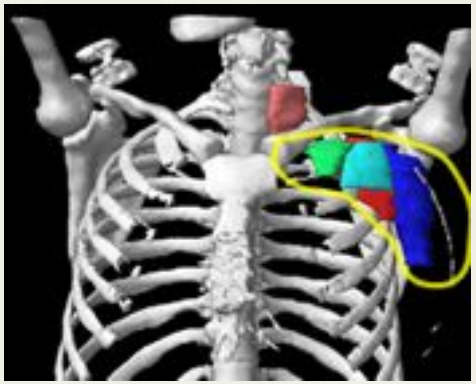


QUALI LINFONODI IRRADIARE...



se la RT segue la dissezione ascellare devono essere trattate le stazioni linfonodali di III livello e sopraclaverari, con inserimento della catene mammaria interna ove si ritiene indicato

se la RT sostituisce (AMAROS) la dissezione ascellare, (ed è stata attuata la biopsia del solo N sentinella) devono essere trattate i linfonodi di I-II-III livello (I-II mandatorio; III opzionale)



Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Eterogeneità delle presentazioni

- Caratteristiche delle pazienti
- Estensione della malattia (TNM)
- Caratteristiche biologiche della malattia
- Trattamento chirurgico
- Trattamento sistemico

Conclusioni….

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early→ ca invasivo

La RT è indicata dopo chirurgia conservativa, riduce il rischio di LR e aumenta la S

Gli schemi ipofrazionati sono validi ed efficaci, caldeggiati ASTRO

La RT riduce il rischio di LR anche nelle donne anziane, ma la S è condizionata dalle comorbidità presenti

L'astensione dalla RT deve essere attentamente ponderata sulla base dei fattori di rischio (selezione) , delle comorbidità e dell'opinione della paziente

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early → APBI

La APBI non è considerabile uno standard per tutte le pazienti

Gli studi randomizzati disponibili di ne dimostrano la fattibilità e l'efficacia in pazienti accuratamente selezionate, in base ai criteri ASTRO ed ESTRO .

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early → DCIS

La RT postoperatoria dopo chirurgia conservativa, riduce in modo significativo l'incidenza di recidive locali (anche nel basso rischio).

Solo in pazienti accuratamente selezionate (low- to intermediate-grade DCIS e margini ampi) si può proporre l'astensione con un tasso di LR contenuto (5% a 5 anni)

Secondo importanti analisi (EORTC) le ricadute invasive sono gravate da un pesante impatto sulla S (60% a 15 aa EORTC)

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early → Whole breast RT

Sempre maggiore attenzione nella pianificazione

Sempre maggior attenzione e accuratezza nel contornamento

Permane il riferimento a documenti datati, ma validati (ICRU)

Rafforzata importanza degli atlanti (AIRO, RTOG, ESTRO…)

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Neoplsia Mammaria Early → Whole breast RT

Studio della distribuzione dose 3D conformazionale, con ottimizzazione mediante field in field

Set up adeguati: paziente prona

Riservare a casi selezionati IMRT (ASTRO 2013)

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

RT post-mastectomia (parete e linfonodi)

La Radioterapia dei Tumori della Mammella. Indicazioni e Criteri Guida

Tabella 1 Radioterapia post-mastectomia: indicazioni

• T3N+ e nei T4 qualsiasi N. T3N0 valutare in base ai fattori di rischio
• Tumore esteso alla parete toracica e/o al muscolo pettorale e/o o alla cute, indipendentemente dallo stato linfonodale
• Tumore di dimensioni fino a 5 cm (T1-2) e numero di linfonodi ascellari positivi ³ 4
• Margini positivi

N1-3 secondo indicazioni recente metanalisi EBCTCG

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

RT dopo CT neoadiuvante

estensione iniziale di malattia

tipo di chirurgia (conservativa o mastectomia)

risposta alla CT neoadiuvante

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

CT NEOADIUVANTE → LABC

- LABC (T3-T4 e/o N2-N3) →RT loco-regionale dopo CT neoadiuvante e chirurgia

- Risposta Patologica Completa→ non vi è parere unanime sulla necessità della dissezione né sulla necessità di una RTestesa anche alle stazioni linfonodali

- **INTERDISCIPLINARIETA'**

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

CT neoadiuvante → NO LABC

- cT1-2 cN0-1 con ypN0 la RT dovrebbe essere eseguita solo sulla mammella dopo chirurgia conservativa (NCCN)

- cT3 cN0 →pN0 non sono disponibili dati sufficienti in letteratura … RT potrebbe essere limitata alla parete toracica

- In caso di ypT0-2 ypN1 (LRR 15%) o yp≥N2 (LRR>20%), si deve considerare la RT su parete e N (fattori di rischio: LVI, il G3, l'alto nodal ratio, età…).

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

Parete toracica e Stazioni linfonodali

Sempre maggiore attenzione nella pianificazione

Sempre maggior attenzione e accuratezza nel contornamento

Permane il riferimento a documenti datati, ma validati (ICRU)

Rafforzata importanza degli atlanti

XXIV CONGRESSO NAZIONALE
AIRO2014
Padova, 8-11 novembre

Indicazioni, dosi e volumi clinici nell'irradiazione della patologia mammaria: stato dell'arte

"Medicine is a science of uncertainty and an art of probability"

Sir William Osler

XXIV CONGRESSO NAZIONALE
AIRO2014

Brainstorming

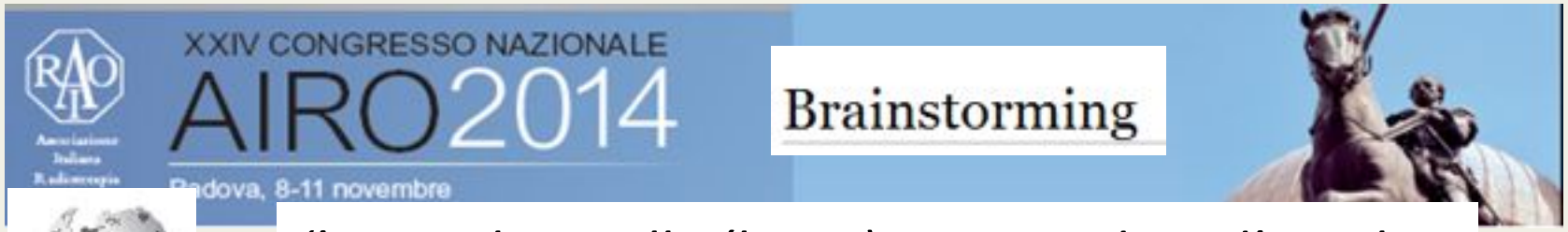
"usare il cervello (brain) per prendere d'assalto (storm) un problema"

La valutazione della paziente dovrebbe essere effettuata collegialmente da un gruppo di specialisti dedicati

radiologo,
anatomo-patologo
chirurgo,
radioterapista oncologo
oncologo medico
paziente

analisi attenta e interdisciplinare di tutti i fattori

tayloring della decisione terapeutica



WIKIPEDIA
L'enciclopedia libera

"usare il cervello (brain) per prendere d'assalto (storm) un problema"

Un appello alla

interdisciplinarietà della discussione

all'analisi attenta di tutti i fattori: selezionare

alla «personalizzazione» della decisione nei casi controversi…tayloring

al coinvolgimento della paziente nella decisione terapeutica