Radiotherapy after mastectomy and in BRCA positive patients

Radioterapia dopo mastectomia e in pazienti BRCA mutate

Martin Maffei
Mariarosa Di Biase
Sarah Reiner

Dienst für onkologische Strahlentherapie - Servizio di Radioterapia oncologica

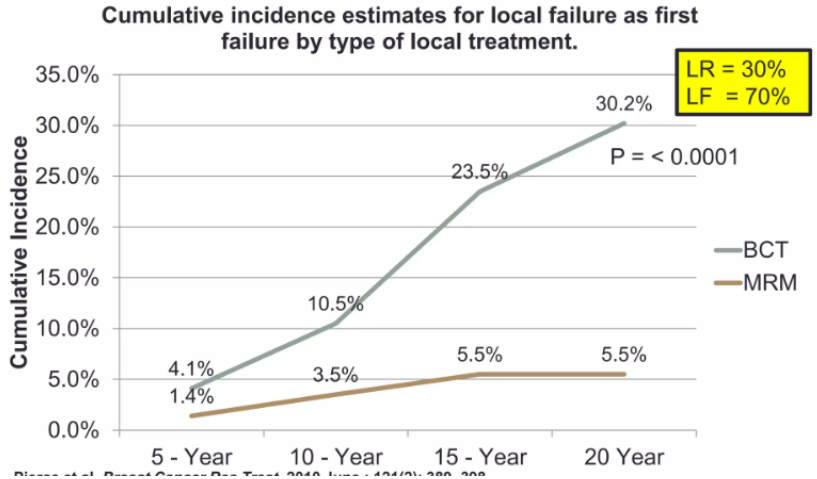
Breast Cancer with BRCA Mutation: Choice of Loco-Regional Management:

Published in final edited form as:
Breast Cancer Res Treat. 2010 June ; 121(2): 389–398. doi:10.1007/s10549-010-0894-z.

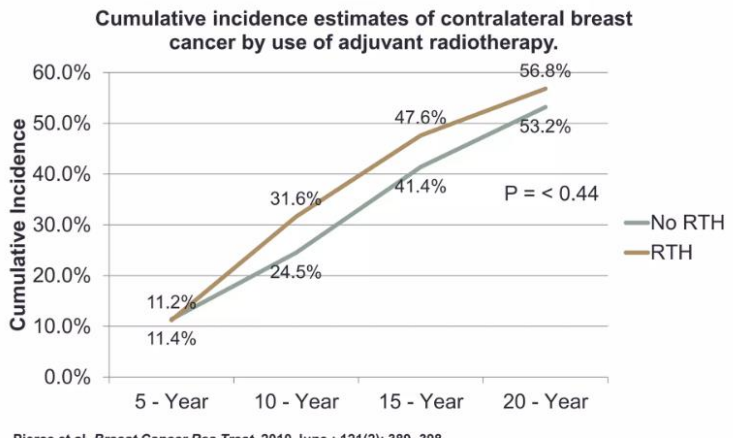
Local Therapy in BRCA1 and BRCA2 Mutation Carriers with Operable Breast Cancer: Comparison of Breast Conservation and Mastectomy

Lori J. Pierce[1], Kelly-Anne Phillips[2], Kent A. Griffith[3], Saundra Buys[4], David K. Gaffney[5], Meena S. Moran[6], Bruce G. Haffty[7], Merav Ben-David[8], Bella Kaufman[8], Judy E. Garber[9], Sofia D. Merajver[10], Judith Balmaña[11], Amichay Meirovitz[12], and Susan M. Domchek[13]

Breast Cancer with BRCA Mutation: Choice of Loco-Regional Management:



Breast Cancer with BRCA Mutation: Choice of Loco-Regional Management:



Indicazione a RT dopo mastectomia

AIRO Breast Cancer Group
Best Clinical Practice 2022 Update

> 3 linfonodi positivi

1-3 linfonodi positivi (alto rischio)

1-3 linfonodi positivi (basso rischio)

T3 / T4

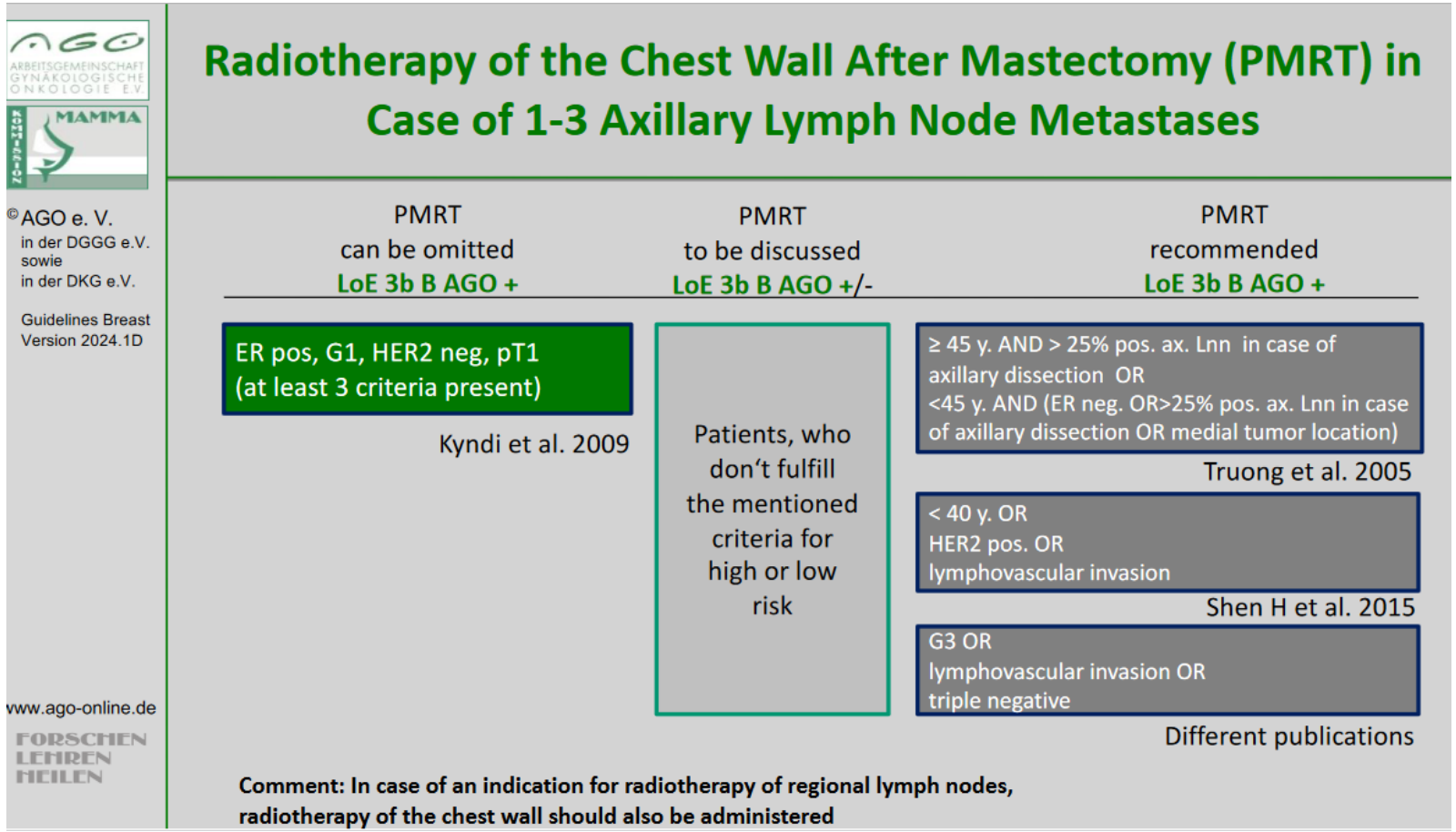
pT3 pN0 R0 (senza ulteriori fattori di rischio)

Resezione R0 non ottenibile (per tumori invasivi)

In pazienti giovani con un alto rischio di recidiva

Le indicazioni per la PMRT e la RT regionale sono indipendenti dalla terapia sistemica adiuvante
Carcinoma infiammatorio: RT della parete toracica e delle regioni di drenaggio linfatico

Fattori di rischio

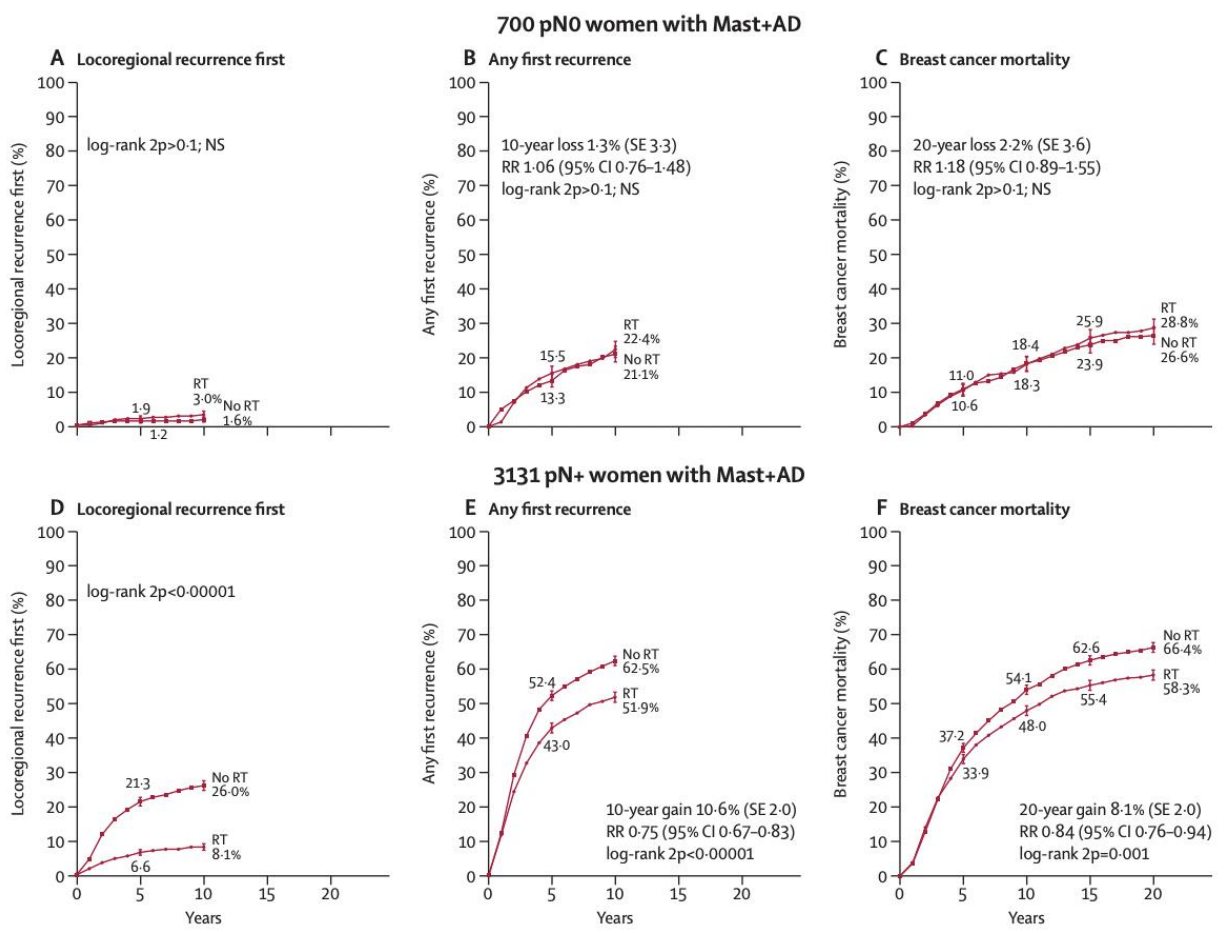


PMRT benefit in 1-3 and ≥4 nodes

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

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

PMRT benefit in 1-3 and ≥4 nodes

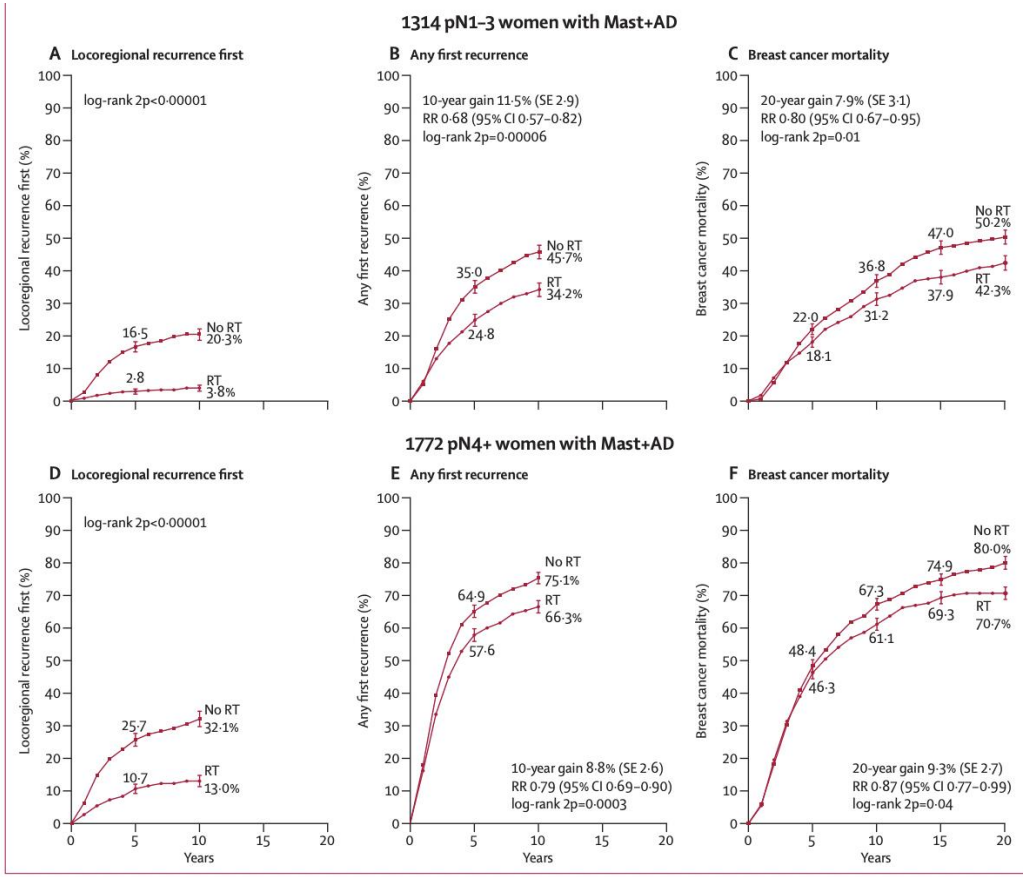


pN0 •no benefit with RT for recurrence or BCM

Any N+ •

5-yr LRR 21% vs. 7% •
10-yr LRR 26% vs. 8% •
5-yr BCM 37% vs. 34% •
10-yr BCM 54% vs. 48% •
20-yr BCM 66% vs. 58%

PMRT benefit in 1-3 and ≥4 nodes



1-3 nodes •
5-yr LRR 17% vs. 3%
10-yr LRR: 20% vs. 4% •
5-yr BCM 22% vs. 18% •
10-yr BCM 37% vs. 31% •
20-yr BCM 50% vs. 42%

PMRT benefit in 1-3 and ≥4 nodes

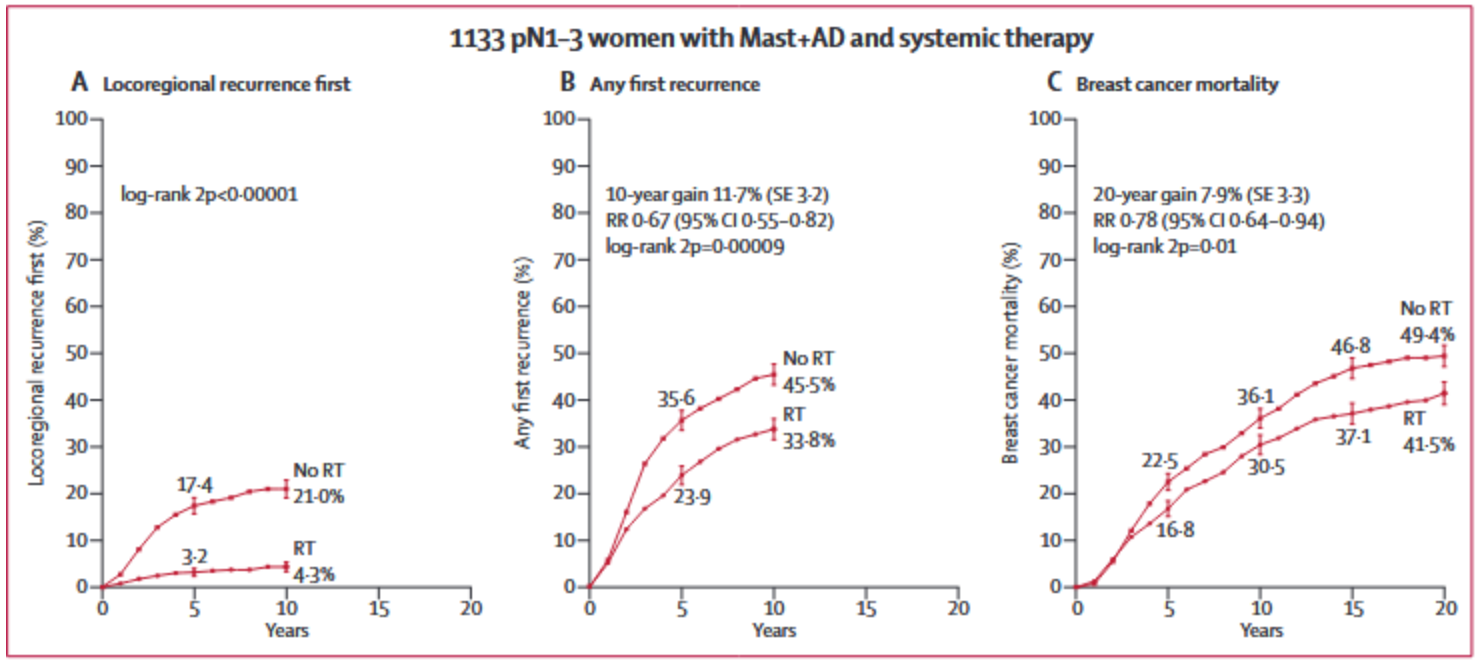


***Figure 5*: Effect of radiotherapy (RT) after mastectomy and axillary dissection (Mast+AD) on 10-year risks of locoregional and overall recurrence and on 20-year risk of breast cancer mortality in 1133 women with one to three pathologically positive nodes (pN1–3) in trials in which systemic therapy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

Analyses of locoregional recurrence first ignore distant recurrences, see appendix pp 8–9 for details. See appendix p 22 for analyses of both locoregional and distant recurrences, and appendix p 21 for analyses of overall mortality. RR=rate ratio. Vertical lines indicate 1 SE above or below the 5, 10, 15, and 20 year percentages.

- RT also reduces DM
- Results consistent in those who received chemotherapy or ET (CMF or TAM)

PMRT benefit in 1-3 and ≥4 nodes

La PMRT : > LRR in 1-3 nodi e ≥4 nodi.

Gli studi erano precedenti all'era di Her2. Gli autori commentano nella discussione che da questi studi le tecniche sono migliorate, anche per quanto riguarda la terapia sistemica mirata, la dissezione e il sezionamento linfonodale, la terapia endocrina e anche le tecniche di RT. Tutte le terapie sono migliorate, compresa la RT, soprattutto per quanto riguarda le tecniche per evitare il cuore.

PMRT benefit in 1-3 and ≥4 nodes

Original Article

Postmastectomy radiotherapy in high-risk breast cancer patients given adjuvant systemic therapy. A 30-year long-term report from the Danish breast cancer cooperative group DBCG 82bc trial ☆

Marie Overgaard [a], Hanne Melgaard Nielsen [b], Trine Tramm [c], Inger Højris [b], Trine Lønbo Grantzau [a], Jan Alsner [a], Birgitte Vrou Offersen [a,b], Jens Overgaard [a,*], on behalf of the DBCG Radiotherapy Group [1]

[a] Department of Experimental Clinical Oncology, Aarhus University Hospital, Denmark; [b] Department of Oncology, Aarhus University Hospital; and [c] Department of Pathology, Aarhus University Hospital, Denmark

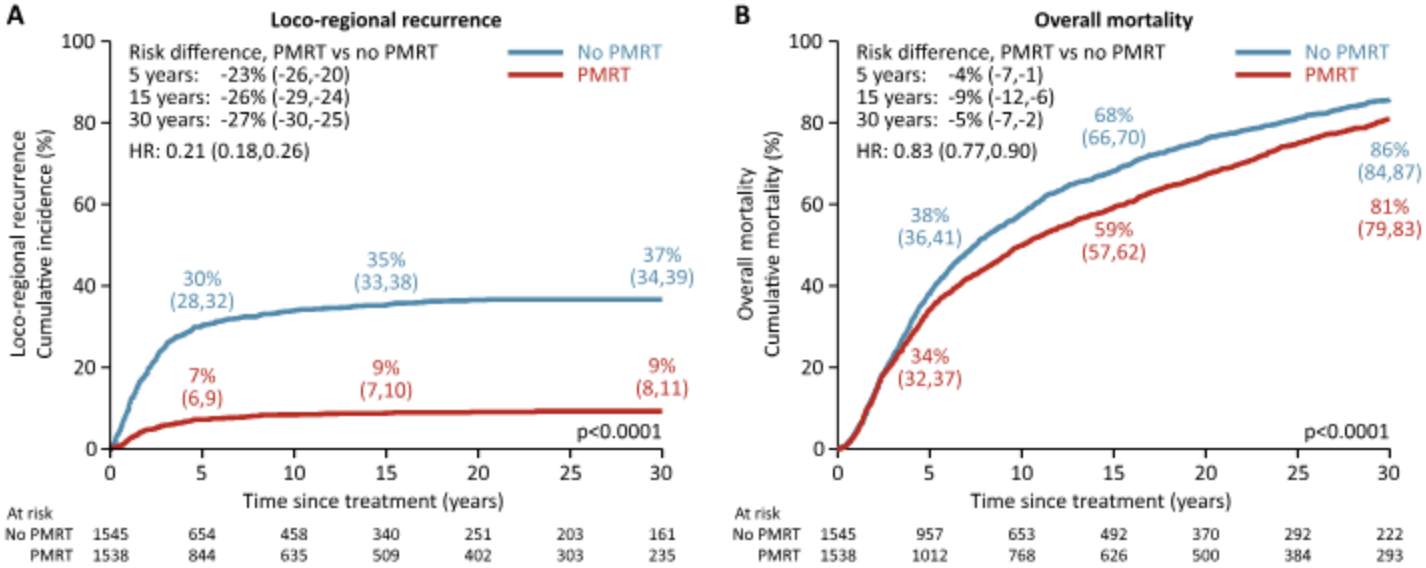
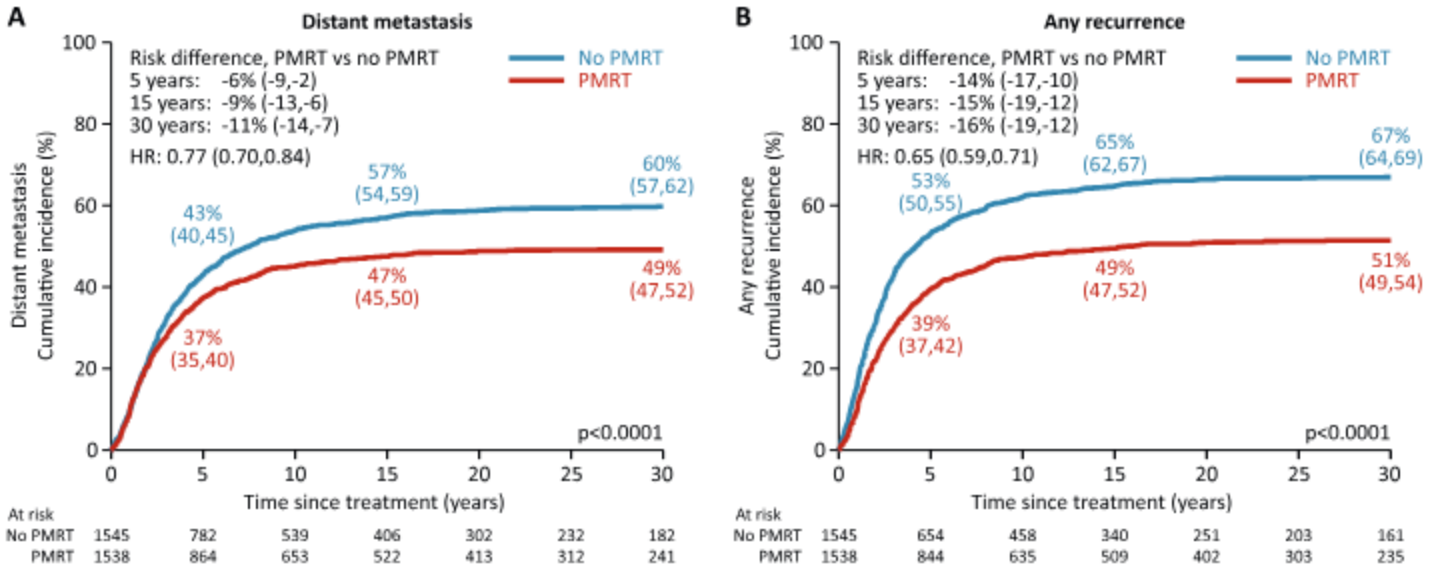
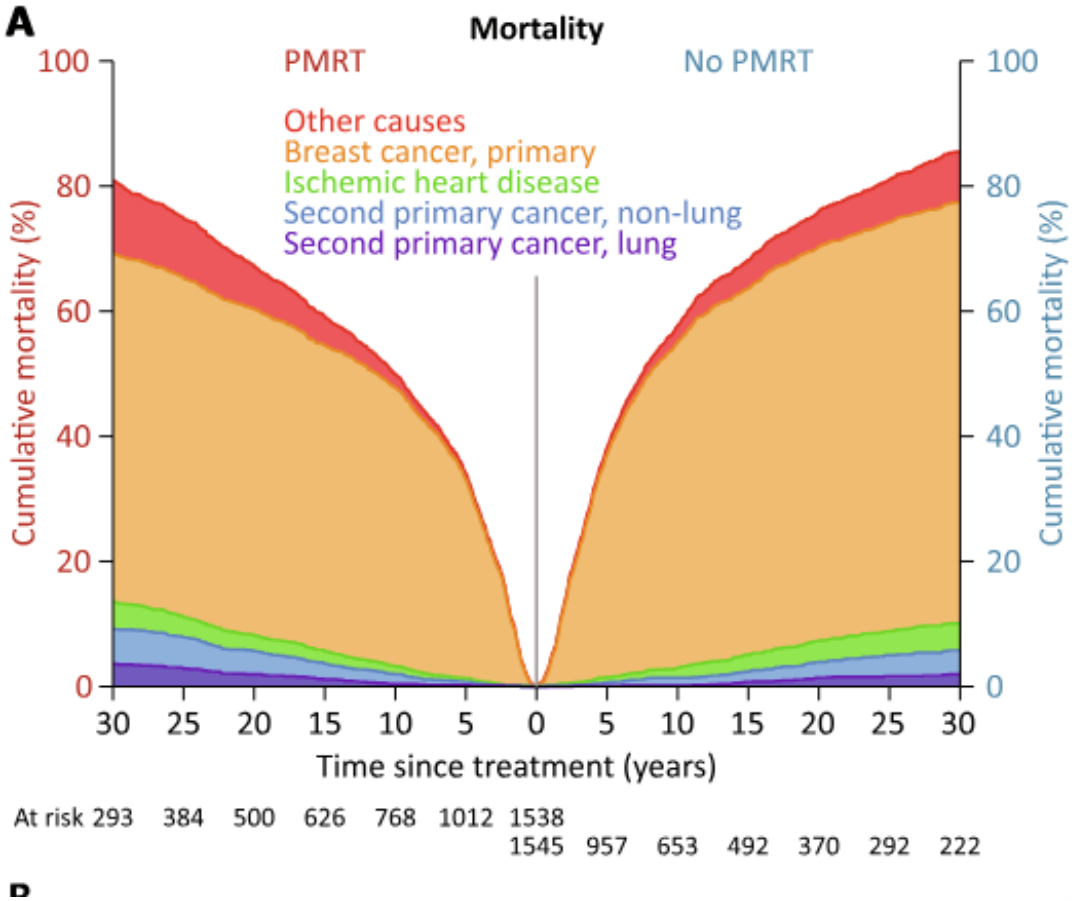


Fig. 1. Effect of radiotherapy on locoregional recurrence (A) and overall mortality (B).

PMRT benefit in 1-3 and ≥4 nodes



PMRT benefit in 1-3 and ≥4 nodes



RECRUITING

Regional Radiotherapy in Biomarker Low-Risk Node Positive and T3N0 Breast Cancer (TAILOR RT)

ClinicalTrials.gov ID NCT03488693

Sponsor Canadian Cancer Trials Group

Information provided by Canadian Cancer Trials Group (Responsible Party)

Last Update Posted 2024-06-14

TAILOR RT (protocol)	Canadian Cancer Trials Group, ongoing protocol	2140	Oncotype <18, ER+ Her2- 1-3 LNs after LND, or 1-2 LNs after SLNB + BCS, or 1 LN after SLNB + mastectomy	→no RT (except WBRT for BCS) vs. →WBRT+RNI or PMRT+RNI (no neoadj chemo) 16 fx hypofx or 25 fx conventional permitted	Ongoing trial Primary endpoint: BCRFI Secondary endpoints: DFS, BCM, OS, LRRFI, toxicity, PROs, QOL, cost effectiveness	indication.Future directions perhaps should include evaluating omission of endocrine therapy in those with low Oncotype. For the RNI arm: Heart, left sided mean ≤3 Gy Heart, left sided V25 ≤10% (variation acc Mean ≤5 Gy, V30 <10%) Ipsi lung V20 ≤35%

PMRT benefit after NSCT

Pre terapia	Post terapia	RT-BET	PMRT	RT-LAW*	Oxford	
		AGO	AGO	AGO	LoE	GR
Lokal fortgeschritten	pCR / keine pCR	++	++	++	1a/1a/1a	A/A/A
cT1-3 cN1**	ypT+ ypN0	++	+	+/-[1]	1a/1b/1b	A/B/B
cT1-3 cN1**	ypT0/is ypN0	++	+/-[1]	+/-[1]	1a/1b/1b	A/B/B
cT1-3 cN0 / cN1** (Sonogr. obligat)	ypN+ o. ypT3/4	++	+	+	1a/2b/2b	A/B/B
cT1-3 cN0 (Sonogr. obligat)	ypT0/is ypN0	++	-	-	1a/2b/2b	A/B/B
cT1-3 cN0 (Sonogr. obligat)	ypT1-2 ypN0	++	-	-	1a/2b/2b	A/B/B

Guidelines Breast
Version 2024.1D

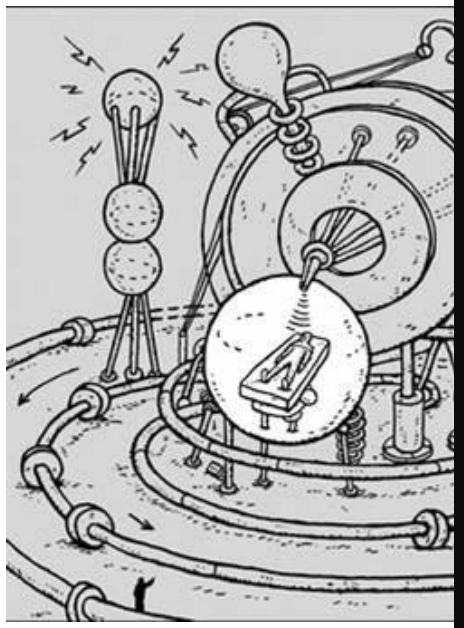
Frazionamento

RT moderata ipofrazionata (dose totale circa 40 Gy in circa 15/16 frazioni in circa 3 settimane).

Dopo la ricostruzione del seno
RT ultra-ipofrazionata (dose totale 26 Gy, cioè 5 frazioni in una settimana = 1 frazione)

RT convenzionale frazionata (dose totale circa 50 Gy in circa 25-28 frazioni in circa 5 settimane = 1 frazione/settimana).

cosa è la radioterapia

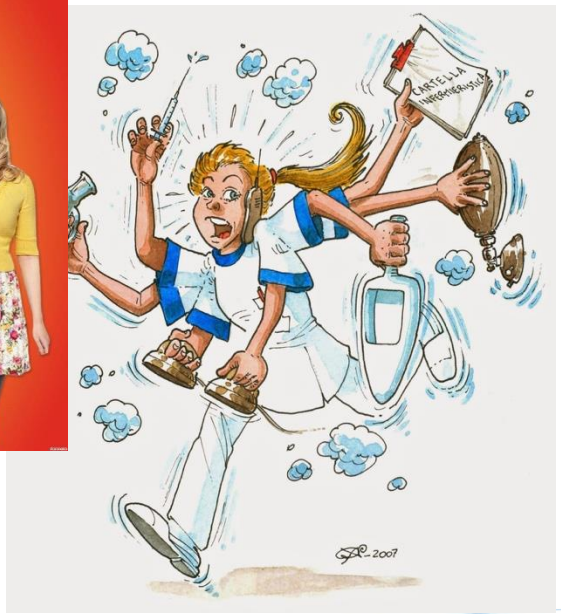


Chi lavora in radioterapia

Radiooncologo

Fisico

Tecnico / infermiera



storia

- 1885 scoperta dei raggi X da Willhelm Conrad Röntgen

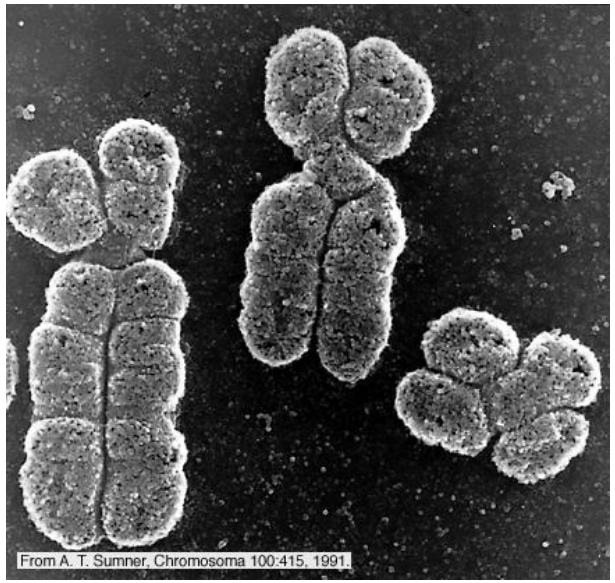
W.C. Roentgen
Scoperta dei Raggi X nel 1895
Premio Nobel per la fisica nel 1901

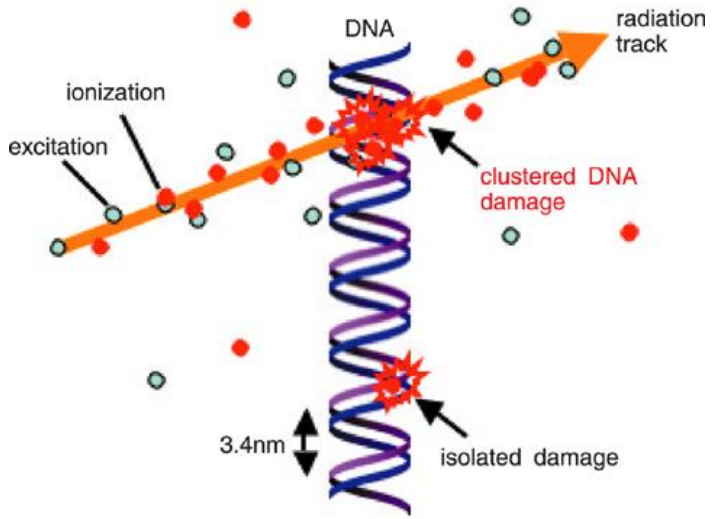
H. Becquerel
Scoperta della radioattività dell'uranio.
Premio Nobel per la fisica nel 1903

Marie e Pierre Curie
nell'hangar di Rue Lhomond (1898). Scoperta della radioattività del polonio e del radio.
Premio Nobel per la fisica nel 1903


Versa HD
Versa HD

Come funziona



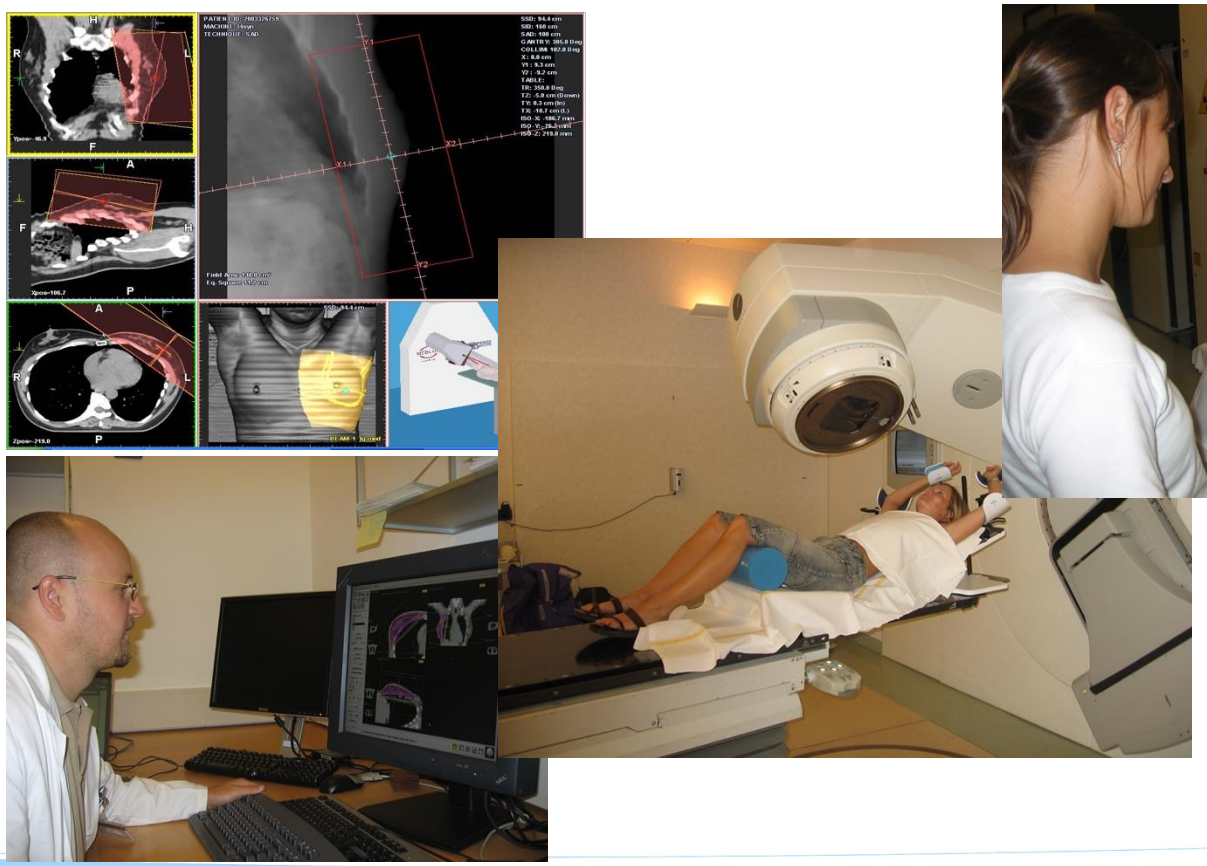


Procedura di radioterapia

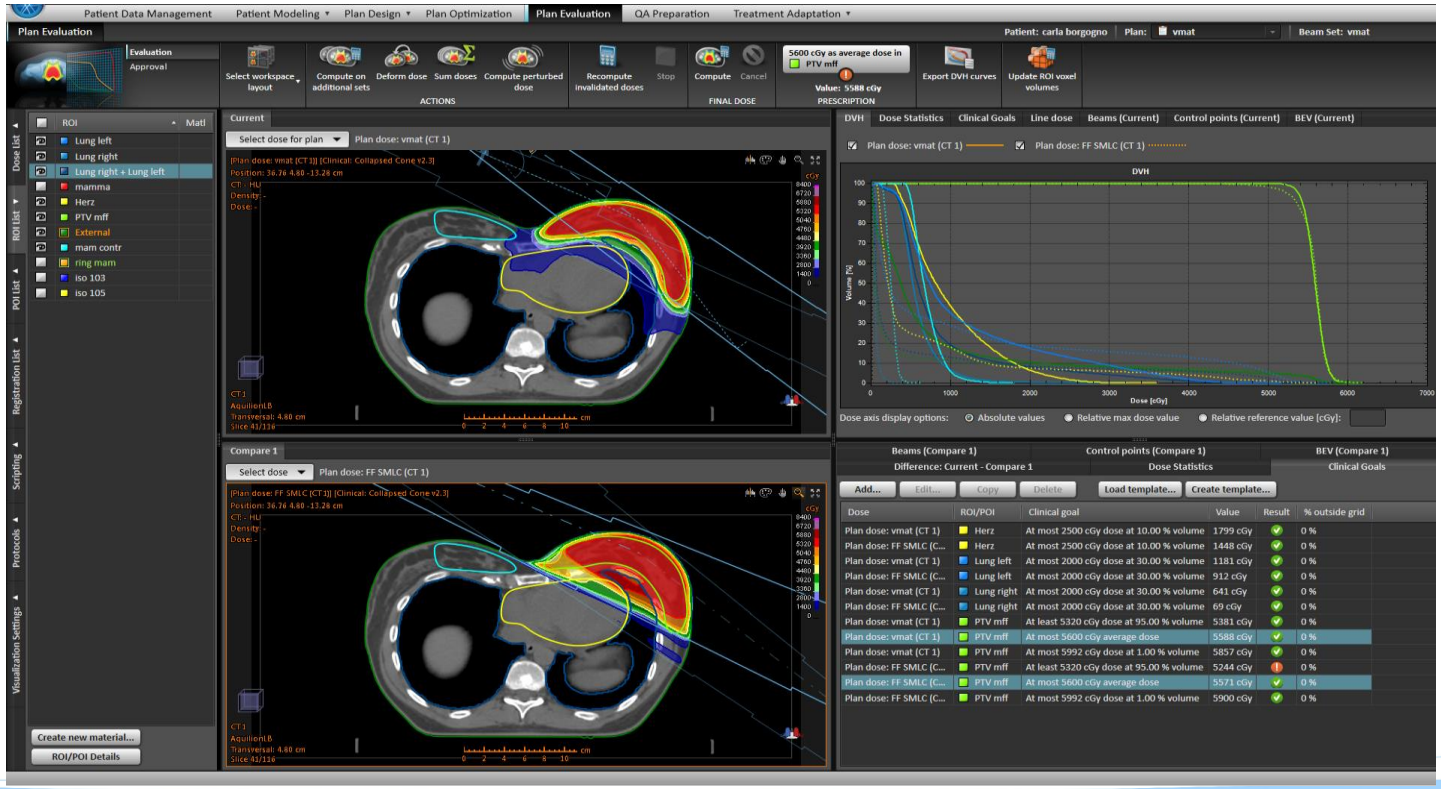
presentazione nel tumorboard – la riunione multidisciplinare

Procedura di radioterapia

Procedura di radioterapia



Tecniche con modulazione della dose: VMAT IMRT



Target – Bersaglio

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Original Article

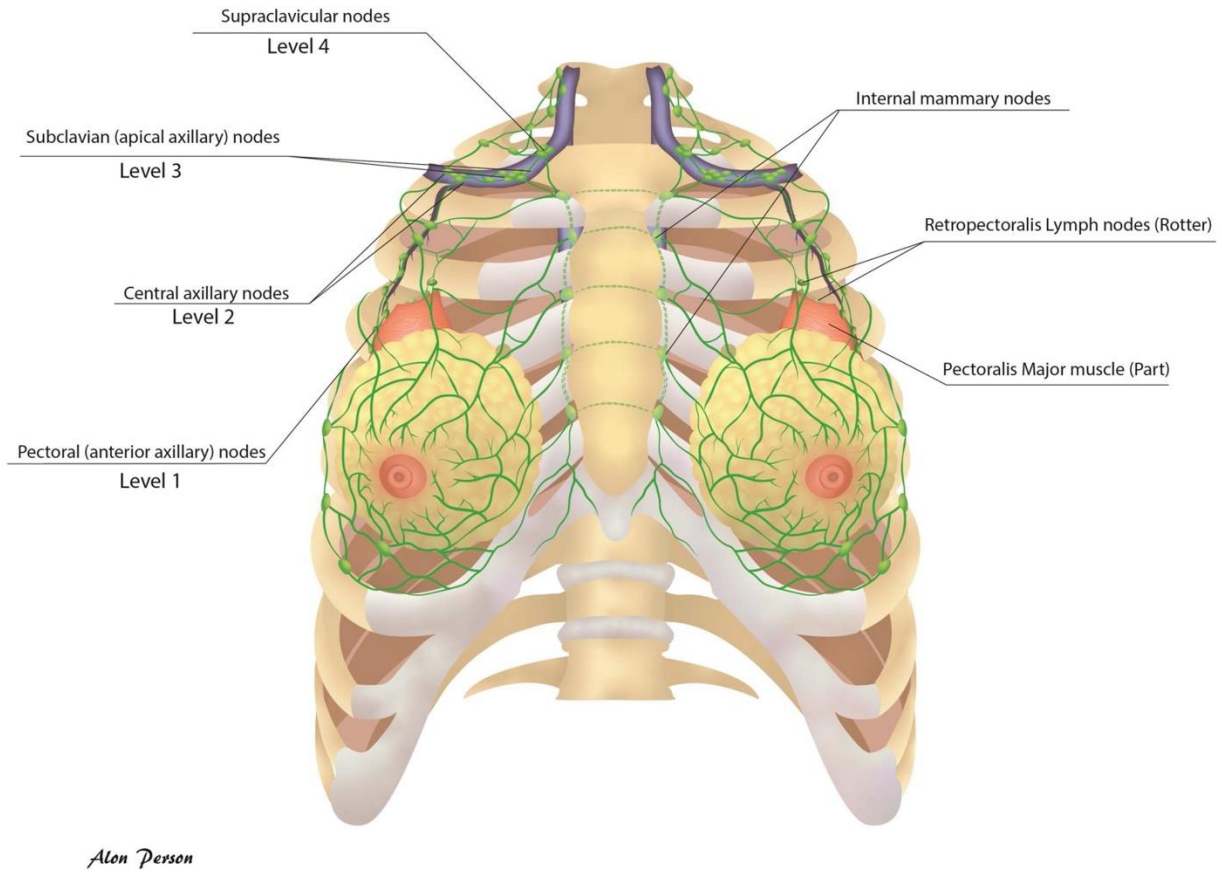
ESTRO ACROP consensus guideline for target volume delineation in the setting of postmastectomy radiation therapy after implant-based immediate reconstruction for early stage breast cancer

I tassi di ricostruzione immediata del seno (IBR) dopo la mastectomia sono in aumento. Mancano linee guida per il contornamento della radioterapia postmastectomia (PMRT) per i volumi target in caso di IBR. Pertanto, molte pazienti sottoposte a IBR ricevono la PMRT con volumi target simili a quelli dell'irradiazione convenzionale del seno intero con simulatore**.**

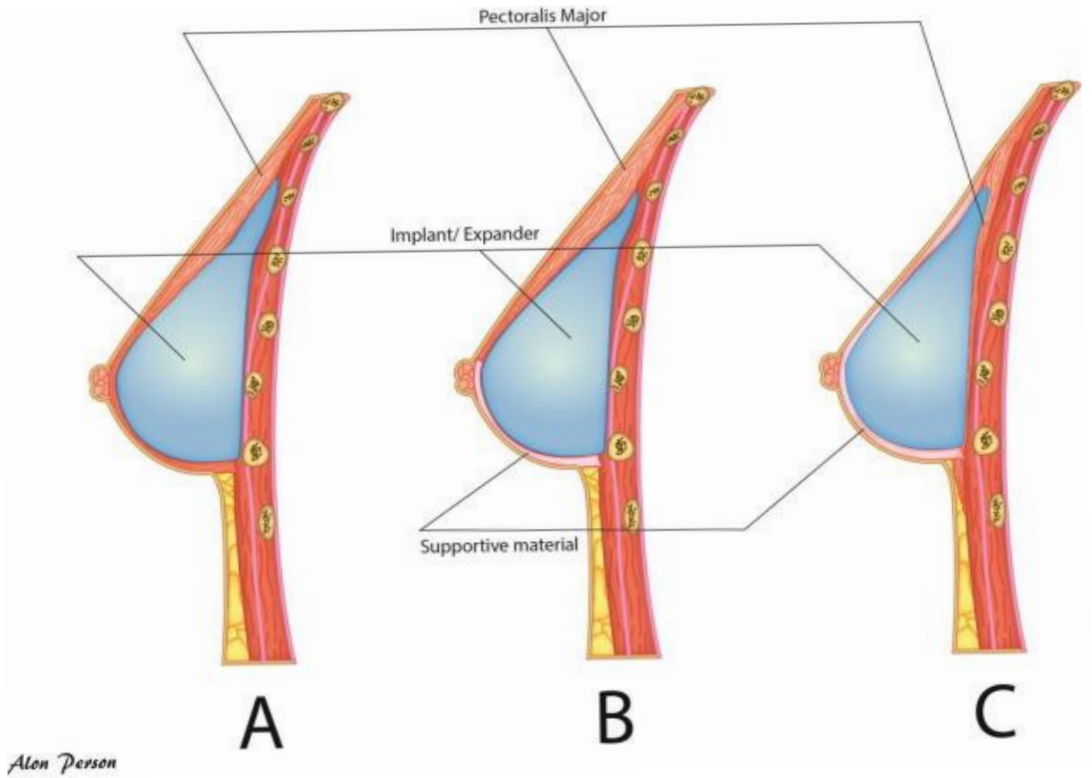
Lo scopo di questo lavoro è descrivere le linee guida per la delineazione della PMRT dopo IBR con impianto, basate su una comprensione approfondita delle procedure chirurgiche, dello stadio della malattia, dei modelli di recidiva e delle tecniche di irradiazione.

Esse si basano su un consenso approvato da un gruppo multidisciplinare globale di esperti di cancro al seno.

Linea guida di consenso ESTRO ACROP per la delineazione del volume



Linea guida di consenso ESTRO ACROP per la delineazione del volume



Radiotherapy and Oncology 137 (2019) 159–166

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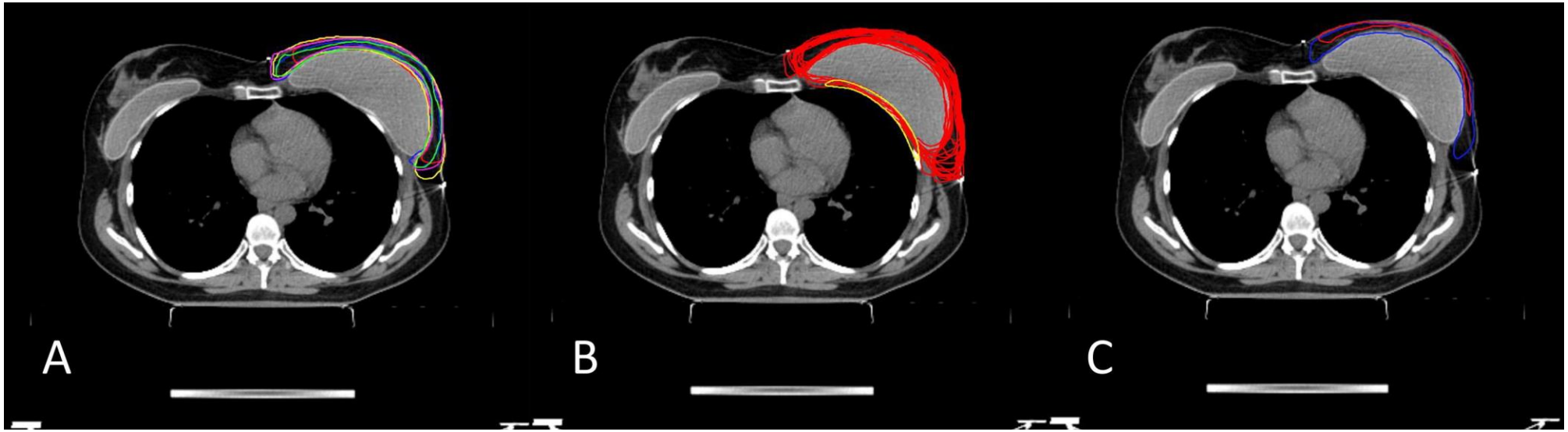
ESTRO ACROP consensus guideline for target volume delineation in the setting of postmastectomy radiation therapy after implant-based immediate reconstruction for early stage breast cancer

Orit Kaidar-Person [a,*,1], Birgitte Vrou Offersen [b,1], Sandra Hol [c], Meritxell Arenas [d], Cynthia Aristei [e], Celine Bourgier [f], Maria Joao Cardoso [g], Boon Chua [h], Charlotte E. Coles [i], Tine Engberg Damsgaard [j], Dorota Gabrys [k], Reshma Jagsi [l], Rachel Jimenez [m], Anna M. Kirby [n], Carine Kirkove [o], Youlia Kirova [p], Vassilis Kouloulias [q], Tanja Marinko [r], Icro Meattini [s], Ingvil Mjaaland [t], Gustavo Nader Marta [u,v], Petra Witt Nystrom [w], Elzbieta Senkus [x], Tanja Skyttä [y], Tove F. Tvedskov [z], Karolien Verhoeven [aa], Philip Poortmans [ab]

Linea guida di consenso ESTRO ACROP per la delineazione del volume



Linea guida di consenso ESTRO ACROP per la delineazione del volume

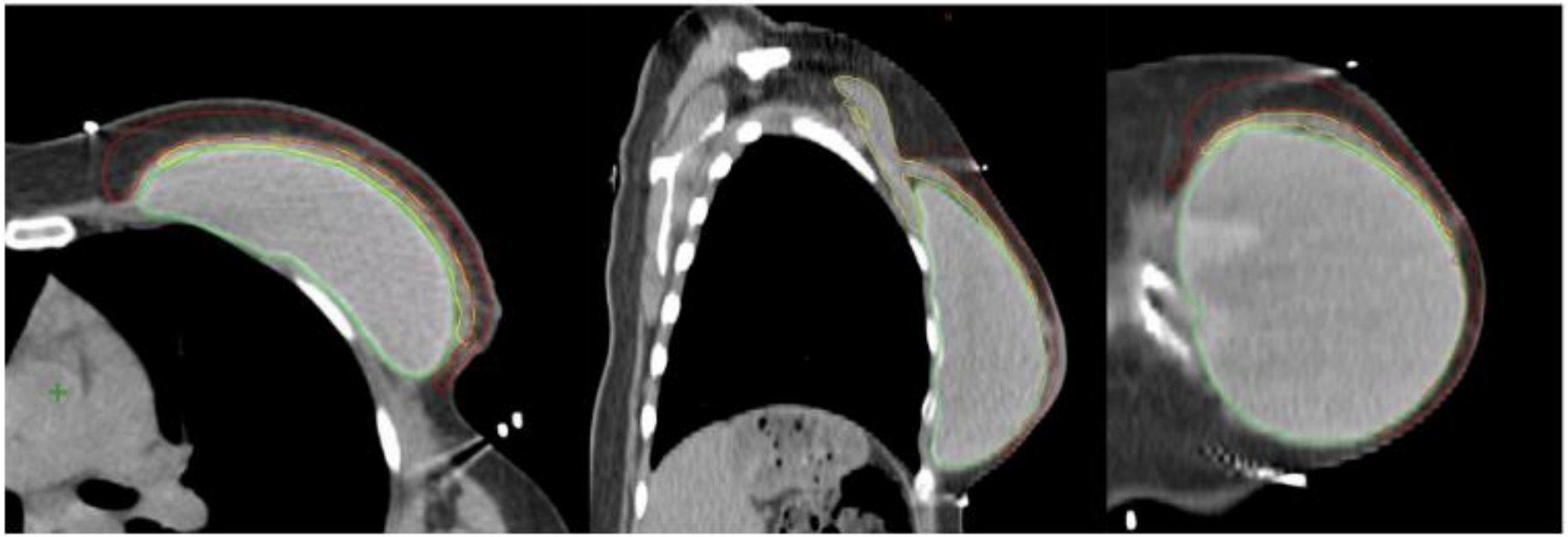


Fig. 4a. CTVp_chestwall with only a ventral part (red) in cases for whom only the subcutaneous lymphatic plexus should be irradiated. Pectoral muscles (yellow) and implant (green).

Linea guida di consenso ESTRO ACROP per la delineazione del volume

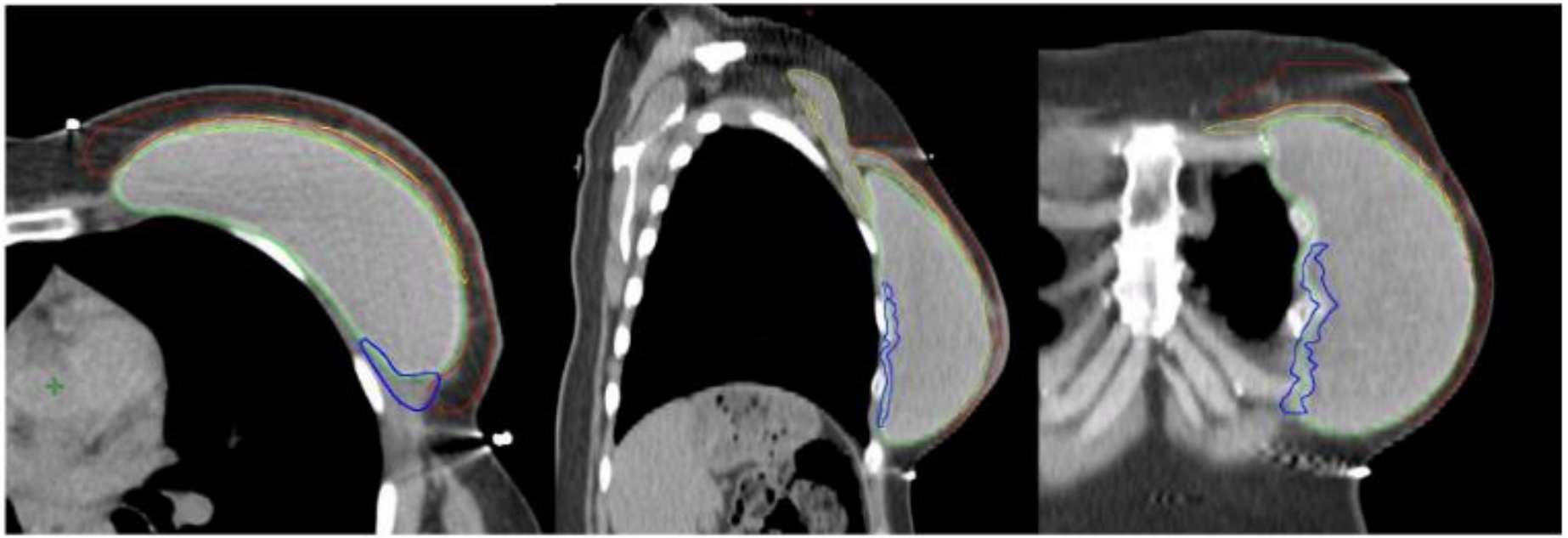


Fig. 4b. CTVp_chestwall with a ventral (red) and dorsal (blue) part in cases for whom the subcutaneous lymphatic plexus should be irradiated as well as the part of the chest wall that was initially not covered by the pectoral muscles (yellow). Retropectoral implant (green).

Linea guida di consenso ESTRO ACROP per la delineazione del volume

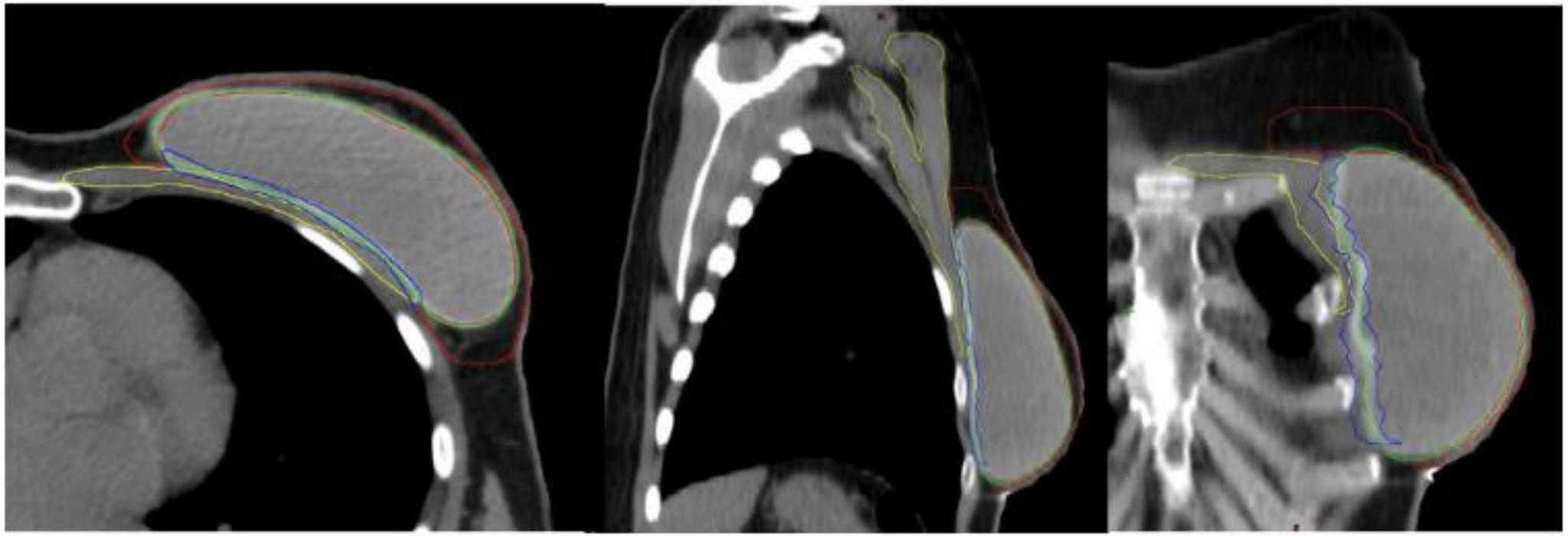
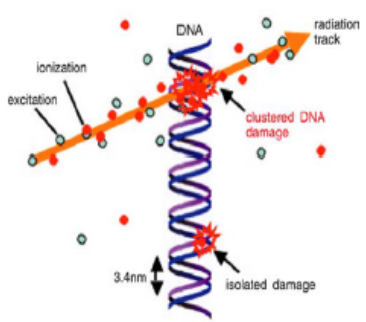


Fig. 4c. CTVp_chestwall with a ventral (red) and dorsal (blue) part in cases with a prepectoral implant (green). Pectoral muscles (yellow).

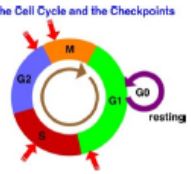
Funzione di BRCA1 e BRCA2

GENI ONCOSOPPRESSORI

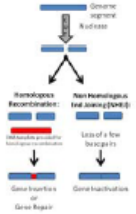
mantenimento stabilità del genoma e regolazione proliferazione cellulare



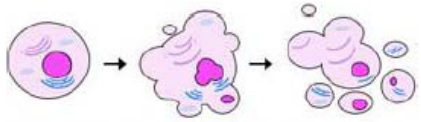
Arresto del ciclo cellulare



Riparo del DNA

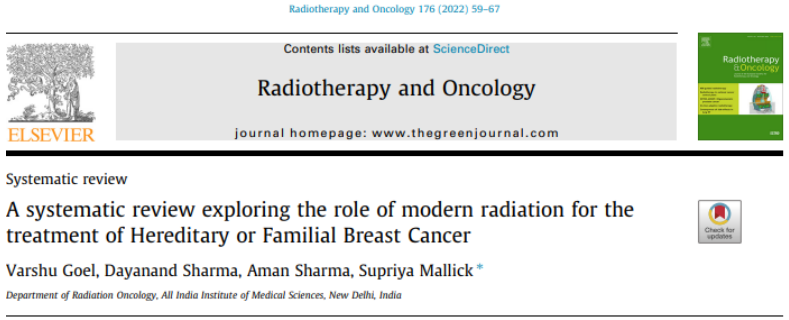


Apoptosi



Radioterapia dopo chirurgia conservativa in pazienti portatrici di mutazione per BRCA1/2

- ❑E’ meno efficace?
- ❑E’ più tossica?
- ❑Causa nuovi tumori?


Radiotherapy and Oncology 176 (2022) 59–67

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journal homepage: www.thegreenjournal.com

Systematic review

A systematic review exploring the role of modern radiation for the treatment of Hereditary or Familial Breast Cancer

Varshu Goel, Dayanand Sharma, Aman Sharma, Supriya Mallick *

Department of Radiation Oncology, All India Institute of Medical Sciences, New Delhi, India

BRCA1/2 Status Does Not Influence Radiation Outcomes in Breast Cancer

QUESITO CLINICO

Qual è il ruolo della RT nelle donne con cancro al seno che presentano una mutazione germinale BRCA1/2 o una mutazione germinale selezionata a moderata penetranza non BRCA1/2?

Per le donne con carcinoma mammario trattate con BCT o mastectomia per le quali si prende in considerazione la radioterapia post-mastectomia, la radioterapia non deve essere sospesa a causa dello stato di mutazione.Non ci sono prove di un aumento significativo di tossicità o di tumori al seno controlaterali (CBC) legati all'esposizione alle radiazioni tra le pazienti con una mutazione in un gene BRCA1/2 o a moderata penetranza.


thank you
gracias
merci
danke
謝謝
ngiyabonga
teşekkür ederim
obrigado
bedankt
dziękuję
go raibh maith agat
mochchakkeram
sukriya
kop khun krap
terima kasih
arigatô
dakujem
grazie
takk
tapadh leat
dank je
спасибо
Баярлалаа
рахмат
мерси
хвала
감사합니다
ありがとう
ευχαριστώ
mauruuru
hvala
sagolum
faafetai lava
kiitos
dankie
dhanyavad
nandri
nanni
bayarlalaa
gracje
köszönöm
enkosi
mersi
kia ora
barka
welalin
tack
spas
vinaka
спасибі
blagodaram
misaotra
matondo
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asante
manana
obrigada
tenki
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sulpáy
taiku
akun dankon aciu
sobodi
dėkuji
mèsi
didi madloba
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rahmet
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dhanyavadagalu
shukriya
mercé