

XXXIII CONGRESSO NAZIONALE AIRO

AIRO2023

BOLOGNA,
27-29 OTTOBRE 2023

PALAZZO DEI CONGRESSI

Radioterapia Oncologica: l'evoluzione al servizio dei pazienti

Comunicazioni orali selezionate 2

Discussant : C. Spatola



Associazione Italiana
Radioterapia e Oncologia clinica

DICHIARAZIONE CONFLITTO DI INTERESSI

Relatore: CORRADO SPATOLA

Come da nuova regolamentazione della Commissione Nazionale per la Formazione Continua del Ministero della Salute, è richiesta la trasparenza delle fonti di finanziamento e dei rapporti con soggetti portatori di interessi commerciali in campo sanitario.

- Posizione di dipendente in aziende con interessi commerciali in campo sanitario (NIENTE DA DICHIARARE)
- Consulenza ad aziende con interessi commerciali in campo sanitario (NIENTE DA DICHIARARE)
- Fondi per la ricerca da aziende con interessi commerciali in campo sanitario (NIENTE DA DICHIARARE)
- Partecipazione ad Advisory Board (NIENTE DA DICHIARARE)
- Titolarità di brevetti in compartecipazione ad aziende con interessi commerciali in campo sanitario (NIENTE DA DICHIARARE)
- Partecipazioni azionarie in aziende con interessi commerciali in campo sanitario (NIENTE DA DICHIARARE)

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Abs B12 (471 di 6) 25. Tumori pediatrici

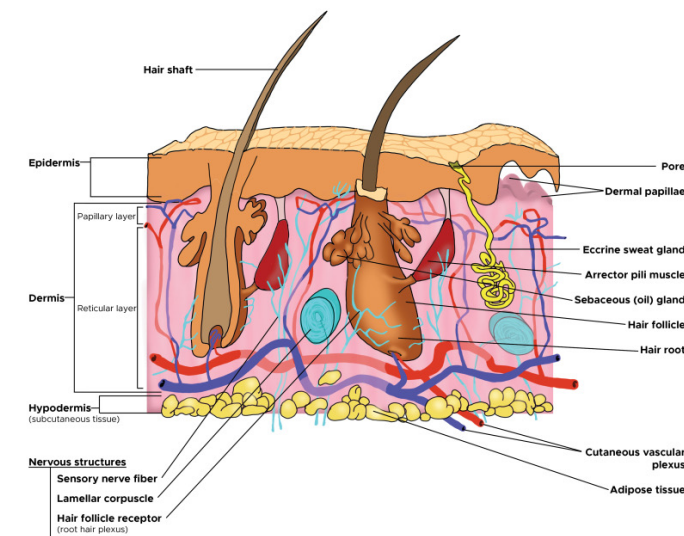
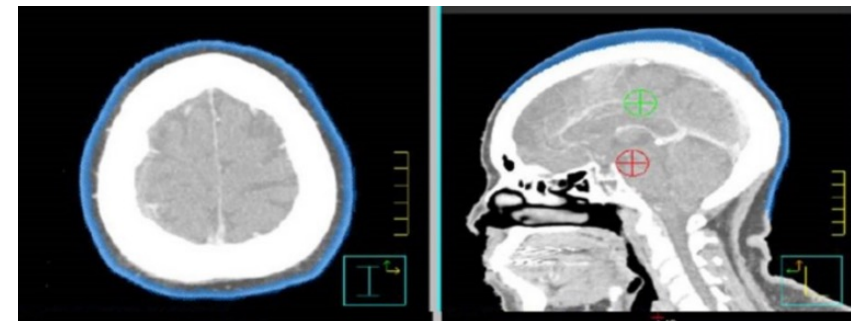
ALOPECIA PERMANENTE DOPO IRRADIAZIONE CRANIOSPINALE NEI PAZIENTI SOPRAVVISSUTI A TUMORE CEREBRALE IN ETÀ PEDIATRICA: ANALISI MULTI FATTORIALE

S. Campora¹, C. Satragno², F. Picichè¹, D. Esposito¹, M. Turazzi¹, F. Giannelli³, C. Cavagnetto⁴, D. Zefiro⁴, N. Di Iorgi^{5,6}, A. Conte^{5,7}, A. Verrico⁷, G. L. Piccolo^{5,7}, L. Belgioia^{1,3}, S. Barra².

1. Dipartimento di Scienze della Salute (DISSAL) Università degli Studi di Genova;
2. Dipartimento di Medicina Sperimentale (DIMES) Università degli Studi di Genova
3. Radioterapia Oncologica, Ospedale Policlinico San Martino;
4. Fisica Medica, Ospedale Policlinico San Martino;
5. Dipartimento di Neuroscienze, Riabilitazione, Oftalmologia, Genetica, Salute del bambino e della mamma (DINOGLMI) Università degli Studi di Genova
6. Dipartimento di Pediatria, Istituto di Ricovero e Cura a Carattere Scientifico Giannina Gaslini
7. Dipartimento di Neuro-Oncologia, Istituto di Ricovero e Cura a Carattere Scientifico Giannina Gaslini

Aims: To define the threshold doses to scalp for permanent alopecia onset combining endocrine, chemotherapy, and clinical data with radiotherapy data.

- *Esperienze derivate dalla Hippocampal-scalp sparing cranial irradiation*
- *Scarsità di lavori in letteratura (1 retrospettivo, 2 prospettici)*
- *Definizione di “scalp”, tecniche applicate e limiti di dose differenti*
- *Diversi metodi di valutazione della QoL*



Radiation-induced alopecia

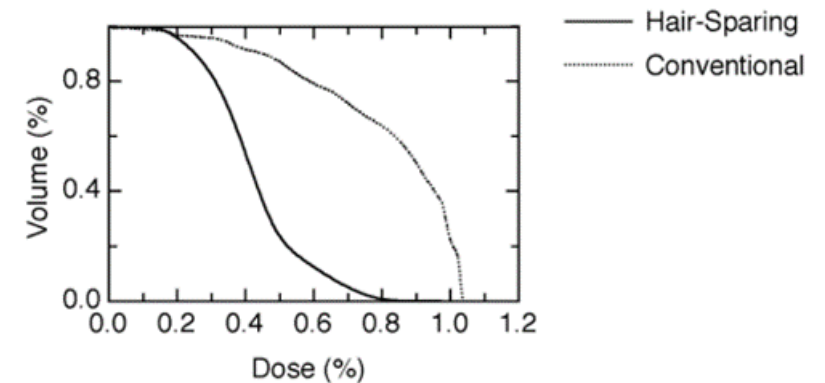
Technology in Cancer Research & Treatment
ISSN 1533-0346
Volume 4, Number 5, October (2005)
©Adenine Press (2005)

**Treating the Contents and Not the Container:
Dosimetric Study of Hair-sparing Whole Brain
Intensity Modulated Radiation Therapy**

www.tcrt.org

David Roberge, M.D.^{1,*}
William Parker, M.Sc.²
Tamim M. Niazi, M.D.¹
Marina Olivares, M.Sc.¹

Dose-volume histogram for hair-bearing skin



“The average measured dose at five surface points was reduced by 53% – from 95% of the prescription dose with the conventional plan, to 44%, with the IMRT plan”

“We would not expect that even a 53% reduction in dose would prevent acute alopecia in most patients. The tolerance of the hair follicle may be as low as 2-3 Gy (in a single fraction). However, the severity and duration of acute alopecia is dose dependent, thus a lower dose may mean shorter-lived partial alopecia”

De Puyssseleyr *et al. Radiation Oncology* 2014, **9**:170
<http://www.ro-journal.com/content/9/1/170>



RESEARCH

Open Access

Hair-sparing whole brain radiotherapy with volumetric arc therapy in patients treated for brain metastases: dosimetric and clinical results of a phase II trial

Annemieke De Puyssseleyr¹, Joris Van De Velde², Bruno Speleers¹, Tom Vercauteren³, Anneleen Goedgebeur¹, Tom Van Hoof², Tom Boterberg^{1,3}, Wilfried De Neve^{1,3}, Carlos De Wagter^{1,3} and Piet Ost^{1,3*}

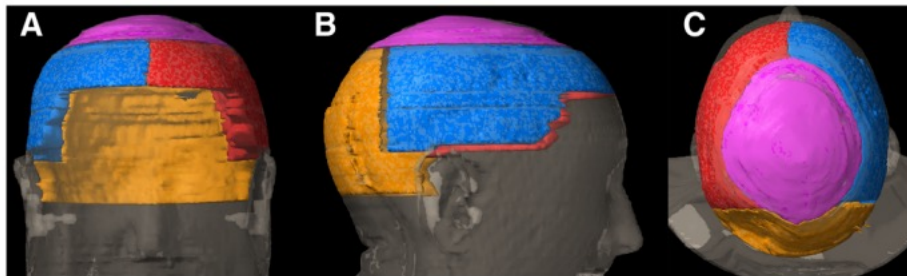


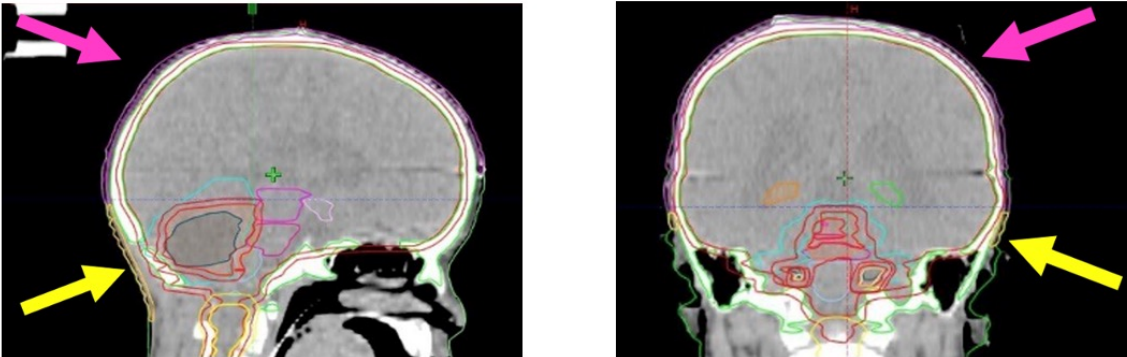
Figure 1 The hair follicle volume was defined as the tissue underlying the skin up to the outer table of the skull. An automated script was written in Pinnacle, version 9.0 (Philips Medical Systems, Andover, MA, US), to automatically contour this volume with the creation of 4 subvolumes representing the different areas of the scalp: top (vertex, pink), back (posterior aspect of the scalp, orange), left (left profile of the scalp, blue) and right (right profile of the scalp, red). **Panel A:** frontal view, **panel B:** lateral view, **panel C:** cranial view.

“In the phase II trial, a total of 10 patients were included before the trial was halted due to futility.

The average median dose to the hair follicle volume was 12.6 Gy, corresponding to a 37% dose reduction compared to the prescribed dose.

*This resulted in a mean SALT-score of 75.”
 (Severity of Alopecia Tool is a scale ranging between 0 (no hair loss) to 100 (complete alopecia))*

Results



Considering the work done by the atlas is in background, **this resulted in a time savings of 80% for the operator.**

Results: Factors associated to Alopecia WS



Total dose to PCF tumor bed	4749.4 ± 1522.27	5797.8 ± 927.03	0.004*
Volume WS	182.1 ± 60.21	161.3 ± 50.35	0.26
Average Dose WS	2428.5 ± 519.11	2774.9 ± 549.38	0.045*
D50% WS	2406.7 ± 514.43	2752.4 ± 608.26	0.037*
D0.03cc WS	4342.9 ± 1100.85	5255.9 ± 1003.29	0.002*
V2000cGy WS	70.5 ± 23.13	78.3 ± 18.24	0.28
V1600cGy WS	88.4 ± 10.50	90.5 ± 6.14	0.98
V2500cGy WS	40.7 ± 34.58	57.7 ± 31.02	0.10
V3000cGy WS	23.9 ± 26.02	43.1 ± 29.23	0.019*
V3500cGy WS	9.7 ± 13.39	24.4 ± 20.18	0.003*
V4000cGy WS	4.1 ± 6.92	10.7 ± 9.42	0.003*
V4300cGy WS	2.6 ± 5.16	6.9 ± 7.45	0.004*
D0.01cc WS	4383.6 ± 1113.59	5306.7 ± 1006.25	0.004*
D98% WS	883.9 ± 736.80	590.8 ± 758.13	0.08
D2% WS	3759.4 ± 928.08	4545.5 ± 839.55	0.003*

Conclusion

- Atlas-based self-segmentation and the Alopecia_Hope protocol offer a more efficient and accurate method to identify the scalp.
- This study demonstrates the effectiveness and efficiency in reducing radiotherapy workload and improving accuracy.
- The identified dose cutoffs can be a guide for scalp-sparing in craniospinal irradiation in paediatric patients.
- Endocrinological damage and surgery do not seem to affect this toxicity as much as radiotherapy and high doses of chemotherapy.
- The combination with Thiotepa and bifraction radiotherapy probably affects the radiosensitivity of the scalp.
- Implementation of the DVH also on the basis of these factors will probably be a simple indication to prevent this toxicity
- Retrospective and prospective studies on larger cohorts are needed for better stratification of identified risk factors and to confirm threshold doses.

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Abs B11 (303 di 6) 21. Malattia oligometastatica

OUTCOME E FATTORI PREDITTIVI DI RISPOSTA IN PAZIENTI OLIGOMETASTATICI AFFETTI DA CANCRO DEL COLON-RETTO TRATTATI CON RADIOTERAPIA STEREOTASSICA (SBRT): L'IMPORTANZA DEL VOLUME TUMORALE

B. Marini^{1,2}, C. Franzese^{1,2}, T. Comito¹, M. Massaro¹, A. Teriaca¹, M. Badalamenti¹, C. Galdieri¹, S. Tomatis¹, M. Scorsetti^{1,2}.

[1] IRCCS Humanitas Research Hospital

[2] Department of Biomedical Sciences, Humanitas University

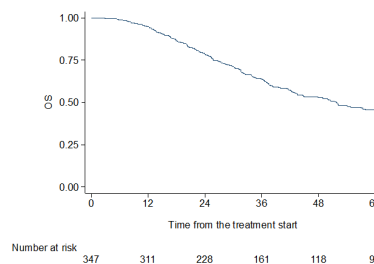
AIM: Understanding and identifying predictive factors is strongly necessary for a successful treatment strategy of oligometastatic colorectal cancer (CRC) patients. The aim of our study is to describe clinical outcomes and predictive factors of a large cohort of oligometastatic patients affected by CRC treated with Stereotactic body radiation therapy (SBRT).

RESULTS: 347 patients for a total of 516 oligometastases

Characteristics	n°	%
Gender		
Female	125	36%
Male	222	64%
Performance Status		
0	231	66,60%
1	80	23%
2	36	10,40%
Primary site		
Colon	236	68%
Rectum	89	25,60%
Sigma	22	6,40%
Treated metastases		
1	207	59,60%
2	85	24,50%
3	44	12,70%
4	5	1,44%
5	6	1,73%

Characteristics	n°	%
Treated organs		
1	307	88,40%
2	36	10,37%
3	4	1,15%
Untreated lesions		
No	199	57,51%
Yes	147	42,49%
Systemic therapy before SBRT		
No	86	24,78%
Yes	261	75,22%
Median time to metastases: 21.2 months (0 - 167.9)		
Total delivered dose: 48 Gy (25 - 75)		
Number of fractions: 4 (1-10)		
BED minimum: 105.6 Gy (35.7 - 262.5)		
Tumor volume, median in cc: 14.1 (0.4 - 596.9)		

MEDIAN OS: 51,6 MONTHS



1-year OS: **94.9%** (95%CI 91.9 - 96.8)
3-year OS **63.8%** (95%CI 58.0 - 69.1)
5-year OS **45.1%** (95%CI 38.9 - 51.2)

WORSE OS:

- worse PS (HR 1.83, 95%CI 1.21 - 2.78; p=0.004)
- tumor volume > 14.1 cc (HR 1.51, 95%CI 1.12 - 2.04; p=0.006)
- in-field progression (HR 1.58, 95%CI 1.16 - 2.16; p=0.004)

BETTER OS:

- prior systemic therapy before SBRT (HR 0.70, 95%CI 0.51 - 0.96; p=0.030)

Tumor volume <= 14.1 cc correlated with a median OS of 68.5 months

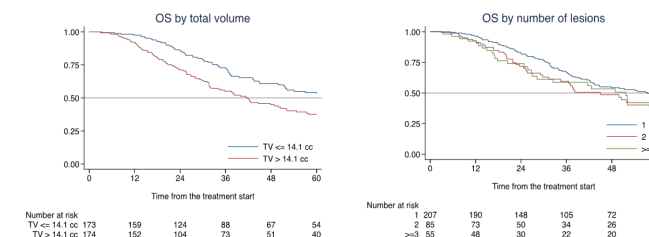


Table 1 Randomized trials of metastasis-directed therapy (MDT) for patients with oligometastatic disease

Study	Histology [%]	No. Patients	No. metastases		Median follow-up	MDT techniques used	RT dose (Gy)	RT No. fractions	PFS (median), month		OS (median), month		Grade 3+ toxicity (%)	
			Eligible	Included					MDT arm	Control arm	MDT arm	Control arm	MDT arm	Control arm
SABR-COMET (7)	Breast [18]; CRC [18]; lung [18]; prostate [16]; other [29]	99	1-5	1: 42 (42%); 2: 32 (32%); 3: 18 (18%); 4: 4 (4%); 5: 3 (3%)	25 months	HIGRT	16-60	1-8	12	6	41	28	N/A G2+: 3 (9%)	N/A G2+: 19 (29%)
MDACC (11)	NSCLC	49	0-3	0-1: 32 (65%); 2-3: 17 (35%)	38.8 months	Surgery and/or HIGRT	15-70	1-33	14.2	4.4	41.2	17	5 (20%)	2 (8%)
UTSW (12)	NSCLC	29	1-6	1: 6 (21%); 2: 14 (48%); 3: 8 (28%); 4: 1 (3%); 5-6: 0 (0%)	9.6 months	HIGRT	21-45	1-15	9.7	3.5	Not reached	17	4 (29%)	3 (20%)
EORTC 40004 (9)	CRC	119	1-9	1-2: 32 (27%); 3-4: 32 (27%); 5-6: 28 (24%); 7-9: 27 (23%)	9.7 years	RFA ± resection	N/A	N/A	16.8	9.9	45.6	40.5	51 (total, not by pt)	59 (total, not by pt)
STOMP (13)	Prostate	62	1-3	1: 27 (44%); 2: 16 (26%); 3: 19 (31%)	3 years	Surgery and/or HIGRT	30	3	ADT- free survival, median: 13	ADT-free survival, median: 17	N/A	N/A	0	0
ORIOLE (14)	Prostate	54	1-3	N/A	18.8 months	HIGRT	19.5-48	3-5	Not reached	5.8	N/A	N/A	0	0

RT, radiation therapy; PFS, progression-free survival; OS, overall survival; CRC, colorectal cancer; NSCLC, non-small cell lung cancer; HIGRT, hypofractionated image-guided radiation therapy; RFA, radiofrequency ablation; MDACC, MD Anderson Cancer Center; UTSW, University of Texas Southwestern.

Malattia oligometastatica
Malattia oligo-progressiva
Malattia oligo-ricorrente
Malattia oligometastatica-indotta

Stereotactic Ablative Radiotherapy for the Comprehensive Treatment of Oligometastatic Cancers: Long-Term Results of the SABR-COMET Phase II Randomized Trial

David A. Palma, MD, PhD¹; Robert Olson, MD, MSc²; Stephen Harrow, MBChB, PhD³; Stewart Gaede, PhD⁴; Alexander V. Louie, MD, PhD⁵; Cornelis Haasbeek, MD, PhD⁶; Liam Mulroy, MD⁷; Michael Lock, MD⁸; George B. Rodrigues, MD, PhD⁹; Brian P. Yaremko, MD, PEng¹⁰; Devin Schellenberg, MD¹¹; Belal Ahmad, MD¹²; Sashendra Senthil, MD, PhD¹³; Anand Swaminath, MD¹⁴; Neil Kopeck, MD¹⁵; Mitchell Liu, MD¹⁶; Karen Moore, MSc¹⁷; Suzanne Currie, MSc¹⁸; Roel Schlijper, MD¹⁹; Glenn S. Bauman, MD²⁰; Joanna Laba, MD²¹; X. Melody Qu, MD, MPH²²; Andrew Warner, MSc²³; and Suresh Senan, MBBS, PhD²⁴

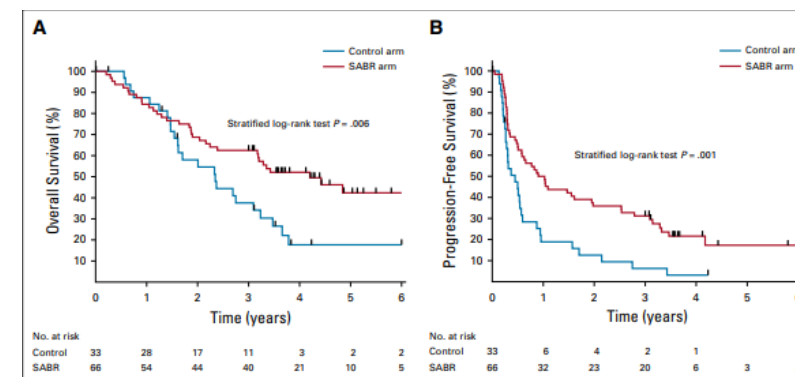


Table 3 OMD on-going phase III randomized controlled trials

Study	Phase	Type of cancer	Intervention										
NCT05278052	III	NSCLC	Standard maintenance therapy + SBRT VS Standard maintenance therapy alone										
NCT05377047	III	Breast cancer	SBRT to all sites VS Standard first line systemic therapy	2027	3 year—OS	NCT04646564	III						
NCT04983095	III	Prostate cancer	SBRT to all sites + standard treatment VS Standard treatment	2029	Failure-free survival	NCT03862911	III						
NCT04498767	III	Solid tumors	SBRT to all sites VS Palliative RT	2030	OS	NCT03784755	III						
NCT04495309	III	Breast cancer	SBRT to all sites + Standard treatment VS Standard treatment	2025	PFS and QoL	NCT03721341	III	Solid tumors	SBRT to primary tumor + Standard treatment VS SBRT to all sites + Standard treatment	2029	OS		
NCT02417662	III	NSCLC	SBRT to all sites + Standard treatment VS Standard treatment alone	2022	3 year—OS	NCT05209243	III	Prostate cancer	SBRT to all metastatic sites + ADT + Standard treatment + RT to primary tumor VS ADT + RT to primary tumor + Second generation hormonal treatment	2026	2 year—PFS		
NCT04599686	III	Prostate cancer	SBRT to all sites VS ADT	2025	1 year—ADT-free survival	NCT03827577	III	NSCLC	SBRT to all sites + Lung resection + Standard treatment VS Standard treatment	2022	5 year—OS		
NCT04115007	III	Prostate Cancer	SBRT to all sites + Standard treatment VS Standard treatment	2027	Castration-resistant prostate cancer free survival	NCT05352178	III	Prostate cancer	SBRT to all sites VS SBRT to all sites + ADT	2032	5 year—Poly metastatic free survival		

Medical Oncology (2022) 39:181
https://doi.org/10.1007/s12032-022-01788-8

REVIEW ARTICLE

A critical review on oligometastatic disease: a radiation oncologist's perspective

Pietro Pacifico^{1,2} · Riccardo Ray Colciago^{1,3} · Francesca De Felice⁴ · Luca Boldrini⁵ · Viola Salvestrini⁶ · Valerio Nardone⁷ · Isacco Desideri⁸ · Carlo Greco⁹ · Stefano Arcangeli^{1,2}



Radiotherapy and Oncology 148 (2020) 157–166

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com



Consensus

Defining oligometastatic disease from a radiation oncology perspective: An ESTRO–ASTRO consensus document

Yolande Lievens^{a,*}, Matthias Guckenberger^b, Daniel Gomez^c, Morten Hoyer^d, Puneeth Iyengar^e, Isabelle Kindts^f, Alejandra Méndez Romero^g, Daan Nevens^h, David Palmaⁱ, Catherine Park^l, Umberto Ricardi^k, Marta Scorsetti^l, James Yu^m, Wendy A. Woodward^c



NSCLC Non-Small Cell Lung Cancer, PFS Progression Free Survival, OS Overall Survival, ADT Androgen Deprivation Therapy, RT Radiation Therapy, QoL Quality of Life

What do we know

Safe treatment

There is no biological evidence supporting the maximal number of metastases, or the maximal lesion size, that can be treated to provide clinical benefit

Definition of OMD did not distinguish extracranial from intracranial metastases

Higher dose, greater control (BED \geq 100)

Influence of prior and current systemic therapy, DFI, PS

Immunomodulation synergistic effects and Local control benefit

What needs to be clarified

Survival benefit

*Correct timing undefined
(earlier treatment, better response?)*

Standardization of techniques and schedules

Multidisciplinary management from diagnosis

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Abs B10 (161 di 6) 14. Tumori gastro-enterici

APPROCCIO TERAGNOSTICO NELLE NEOPLASIE DEL RETTO TRATTATE CON RADIOTERAPIA IBRIDA GUIDATA DALLA RISONANZA MAGNETICA: ANALISI DI SICUREZZA AD INTERIM DELLO STUDIO DI FASE II THUNDER-2

G. Chiloiro¹, A. Romano¹, D. Cusumano², L. Boldrini¹, G. Panza¹, E. Meldolesi¹, L. Placidi¹, G. Meffe¹, M. Nardini¹, L. Indovina¹, M. A. Gambacorta¹.

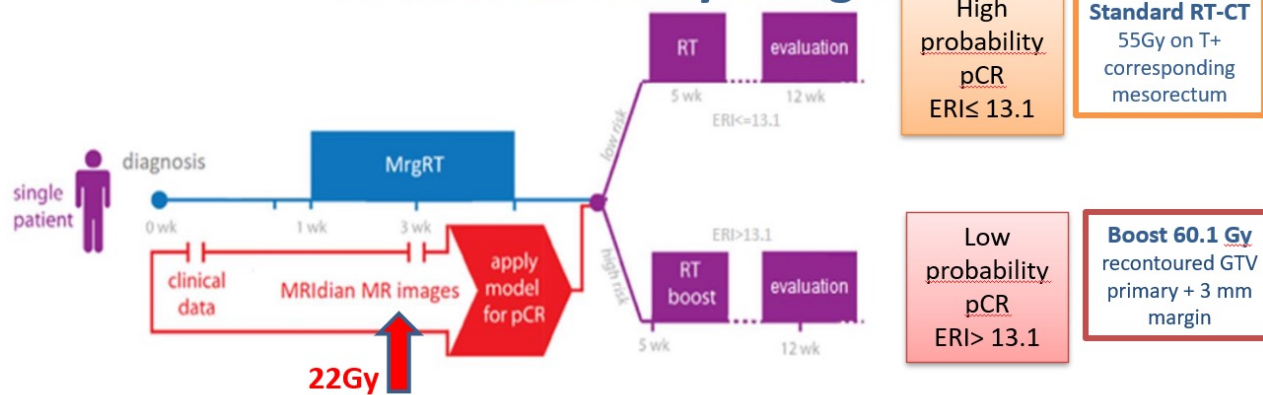
¹Fondazione Policlinico Universitario "A. Gemelli" IRCCS

²Mater Olbia Hospital

Aims

Thunder 2 is a prospective clinical trial that focuses on exploring the potential therapeutic and diagnostic benefits of MRI-guided radiotherapy (MRigRT) for locally advanced rectal cancer (LARC). Its primary aim is to assess the impact of escalating radiotherapy (RT) doses in LARC patients who have been identified as poor responders based on the Early Tumour Regression Index (ERI) on likelihood of achieving both pathological and clinical complete response. This interim analysis aims to evaluate the safety and feasibility of implementing the dose escalation MRigRT strategy within the clinical trial.

Thunder 2: study design



Chiloiro G. et al, BMC 2022



Original article

A TCP-based early regression index predicts the pathological response in neo-adjuvant radio-chemotherapy of rectal cancer

Claudio Fiorino^{a,*}, Calogero Gumina^b, Paolo Passoni^b, Anna Palmisano^c, Sara Broggi^a, Giovanni M. Cattaneo^a, Alessandra Di Chiara^c, Antonio Esposito^c, Martina Mori^a, Roberta Raso^a, Monica Ronzoni^d, Riccardo Rosati^e, Najla Slim^b, Francesco De Cobelli^c, Riccardo Calandrino^a, Nadia G. Di Muzio^b

^aMedical Physics; ^bRadiotherapy; ^cRadiology; ^dOncology; and ^eGastroenterology Surgery, San Raffaele Scientific Institute, Milano, Italy

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Thunder 2: aims

- Increasing of **10%** of **CR** rate in "not responder" rectal cancer patients treated with MRI-LINAC hybrid machine
- Evaluating the **fea** models in MR-guided

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Thunder 2: interim analysis acute toxicity

	Toxicity (CTCAE v 5.0)				*p value
	G1	G2	G3	Total	
16 boost	22 (68.8)	7 (21.9)	1 (3.2)	30 (93.8)	0.54
16 no boost	11 (34.4)	4 (12.5)	0	15 (46.9)	
	11 (34.4)	3 (9.4)	1 (3.2)	16 (50)	
Proctitis	7 (21.9)	1 (3.2)	1 (3.2)	9 (28.1)	
Diarrhoea	12 (37.5)	2 (6.3)	1 (3.2)	15 (46.9)	
Tenesmus	13 (40.7)	1 (3.2)		14 (43.9)	
Mucorrhoea	15 (46.9)	3 (9.4)		18 (56.3)	
Cystitis	8 (25)		1 (3.2)	9 (28.1)	
Fatigue	7 (21.9)	1 (3.2)		8 (25)	

CRT treatment was discontinued in 5 (15.6%) patients

CHT was discontinued in 2 other patients (overall 7 (21.9%))

Chiloiro G. et al, Radiation Oncology 2023

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Intensificazione del trattamento neoadiuvante

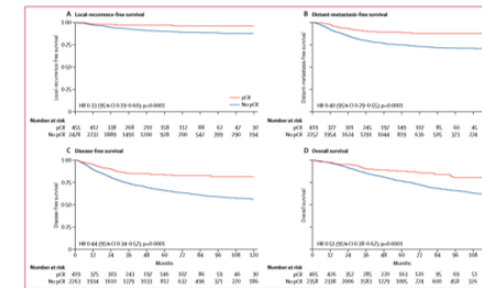
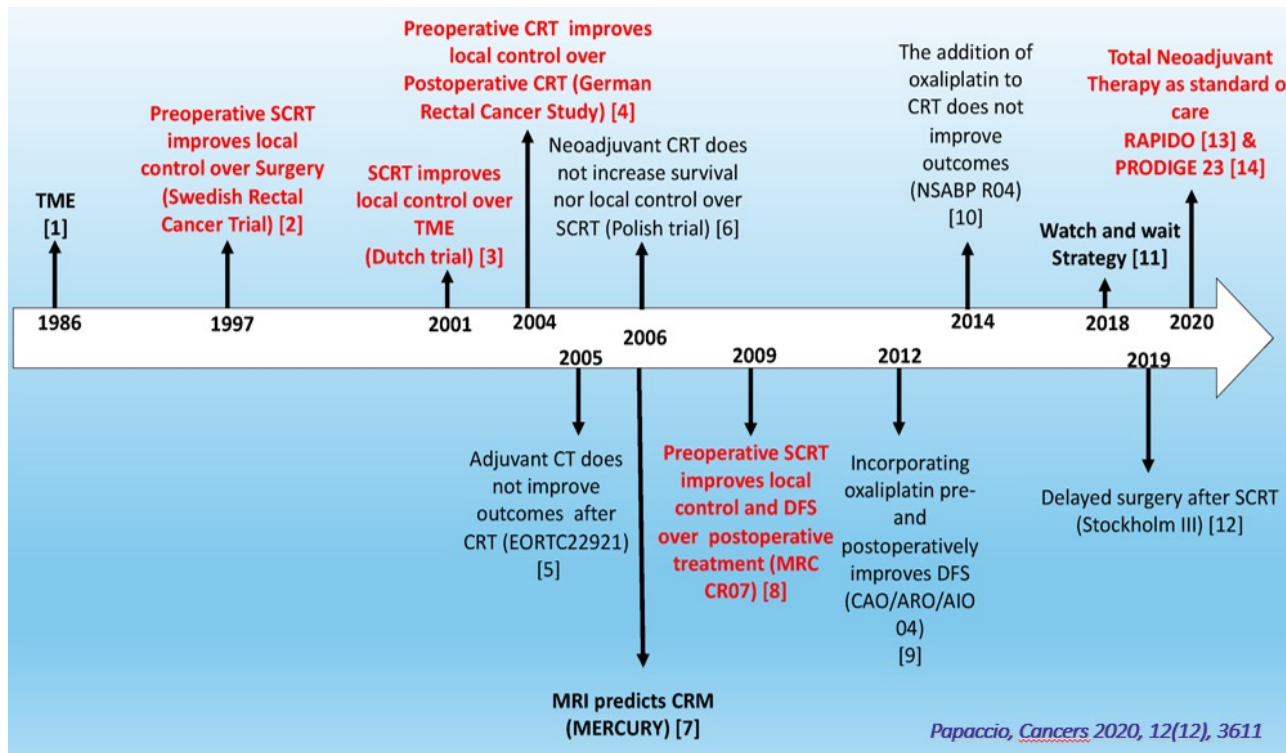


Figure 2. Kaplan-Meier survival curves for patients with and without pathological complete response (pCR). (A) Local recurrence-free survival. (B) Distant recurrence-free survival. (C) Disease-free survival. (D) Overall survival. For all study centers provided data for all four outcome measures, which explains the differences in numbers at risk between outcome measures. p values were determined by log-rank test. HR: Hazard Ratio.

Long-term outcome in patients with a pathological complete response after chemoradiation for rectal cancer: a pooled analysis of individual patient data

Monique Maas, Perry J Nelmans, Vincenzo Valentini, Pragna Das, Claes Ridet, Li-Jen Kuo, Felipe A Calvo, Julian Garcia Aguilera, Rob Gymer-Jones, Karin Haustermans, Mohammed Mohiuddin, Salvatore Pucciarri, William Small Jr, Javier Sobez, George Theodoropoulos, Sebastiano Biondi, Regina G H Berntsen, Gerard L Beets

Dovuto a cosa?

- intensificazione RT
- intensificazione CT
- allungamento del timing per la chirurgia

Patients with pCR after chemoradiation have better long-term outcome than do those without pCR. pCR might be indicative of a prognostically favourable biological tumour profile with less propensity for local or distant recurrence and improved survival.

Schemi TNT attualmente in uso

1. **Chemioradioterapia neoadiuvante (nCRT) seguita da chemioterapia di consolidamento (CONCT):**
2. **Chemioterapia di induzione (INCT) seguita da chemioradioterapia neoadiuvante (nCRT)**
3. **Chemioterapia di induzione (INCT) seguita da chemioradioterapia neoadiuvante (nCRT) seguita da chemioterapia di consolidamento (CONCT).**

Chemioradioterapia concomitante
5-FU o capecitabina

Chemioterapia di induzione o consolidamento
Folfox4 – Xelox - Folfirinox

Cancer Treatment Reviews 96 (2021) 102177

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Hot Topic

Total neoadjuvant therapy for rectal cancer: Making sense of the results from the RAPIDO and PRODIGE 23 trials

E.F. Giunta^a, G. Bregni^b, A. Pretta^b, A. T. Troiani^a, F. Ciardiello^a, A. Hendlisz^b

Neoadjuvant radiotherapy dose escalation for locally advanced rectal cancers in the new era of radiotherapy: A review of literature

Durim Delishaj, Ilaria Costanza Fumagalli, Stefano Ursino, Agostino Cristaudo, Francesco Colangelo, Antonio Stefanelli, Alessandro Alghisi, Giuseppe De Nobili, Romera D'Amico, Alessandra Cocchi, Antonio Ardizzoia, Carlo Pietro Soatti

Radiotherapy and Oncology 134 (2019) 110–118

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Original Article

The INTERACT Trial: Long-term results of a randomised trial on preoperative capecitabine-based radiochemotherapy intensified concomitant boost or oxaliplatin, for cT2 (distal)–cT3 rectal cancer

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Intensified neoadjuvant radio-chemotherapy for locally advanced rectal cancer: mono-institutional experience and long-term results

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cancers

MDPI

Article

Integrated Intensified Chemoradiation in the Setting of Total Neoadjuvant Therapy (TNT) in Patients with Locally Advanced Rectal Cancer: A Retrospective Single-Arm Study on Feasibility and Efficacy

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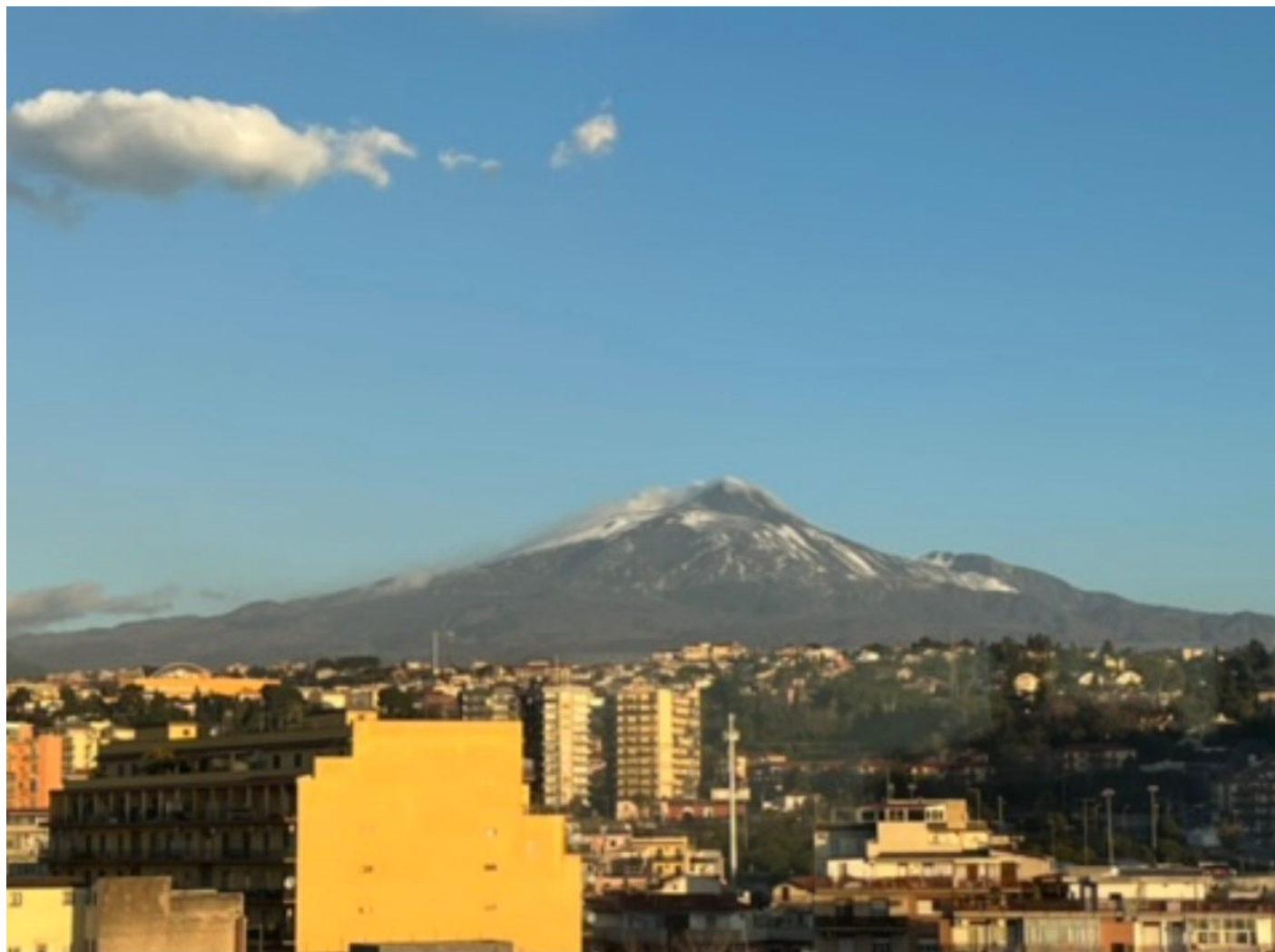


In case of cCR: **W&W** or **LE** approach could be followed

Tasso di regrowth del 22.1%
(il 96% nei primi 3 anni di sorveglianza)
OPRA Trial

AIRO2023

Radioterapia Oncologica:
l'evoluzione al servizio dei pazienti



GRAZIE