La malattia oligometastatica: classificazione e risultati terapeutici

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Agenda

- Definition of oligometastases
- Local therapies for oligometastases
- Oligometastases in breast cancer
- Clinical evidences
- Future directions

Oligomets definition

EDITORIAL

Oligometastases

CANCER TREATMENT is based on an often unstated paradigm of disease pathogenesis. Since 1894, when W.S. Halsted[1,2] clearly elucidated a mechanism of breast cancer spread and used it to design and support the radical mastectomy, surgical and radiotherapeutic approaches to most cancers have been based on this theory. The Halsted theory proposed that cancer spread is orderly, extending in a contiguous fashion from the primary tumor through the lymphatics to the lymph nodes and then to distant sites. Radical en
as radical neck dissection in continuit
the primary tumor, radical hysterectom
regional irradiation for a variety of t
based on this notion of cancer sprea
another hypothesis has gained promine
gested with regard to breast cancer.[3-5]
pothesis proposes that clinically appar
temic disease. Small tumors ar
manifestation of such systemic disea
to metastasize, has already metastasi
involvement is not orderly contiguous extension, but rather a marker of distant disease. Systemic metastases are multiple and widespread, and when subclinical are referred to as micrometastases. Under these circumstances, treatment of local or regional disease should not affect survival.

more about the multistep nature of the development of malignancy.[11-13] Once tumors become invasive, they may gradually acquire the properties necessary for efficient and widespread metastatic spread.[14] Therefore the likelihood, number, and even sites of metastases may reflect the state of tumor development. This suggests that there are tumor states intermediate between purely localized lesions and those widely metastatic. Such clinical circumstances are not accounted for by either the contiguous

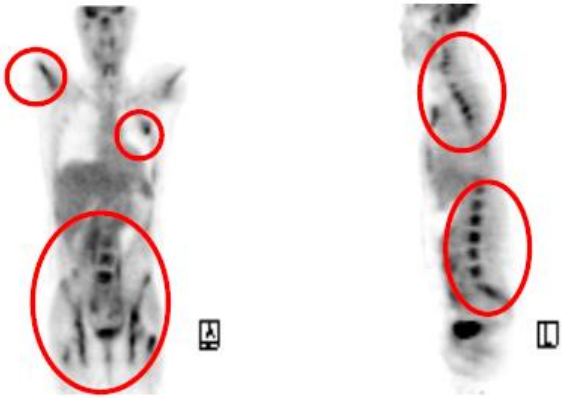
or concentrate these metastases to a single or a limited number of organs. The likelihood of the oligometastatic state should correlate with the biology of tumor progression, rough clinical surrogates of which, for many tumors, might be primary tumor size and grade. Metastasizing cells may seed specific organs as a function of the seeding

An oligometastatic state is an "**intermediate state between purely localized lesions and those widely metastatic**". The state was expounded to be "**amenable to a curative therapeutic strategy**" and "**amenable to localized therapy**".

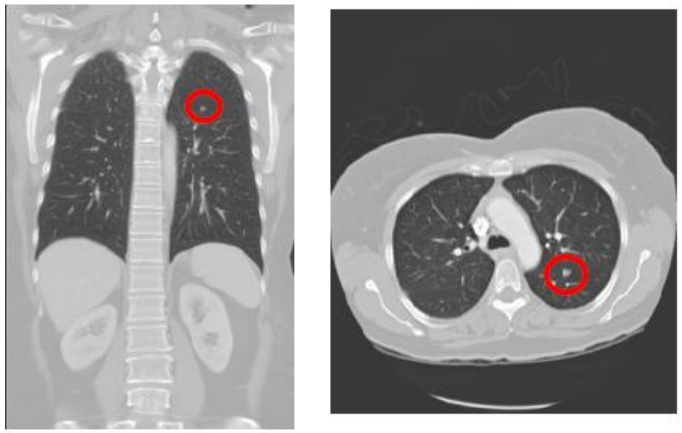
Hellman S, Weichselbaum RR. JCO 1995

Oligomets definition

Widely Metastatic Disease



Limited Metastatic Disease



- Distinct clinical state
- Metastases limited in number/destination organ (3 to 5 in 1-3 sites)
- More indolent biology earlier in the metastatic cascade
- Amenable to local ablative approaches

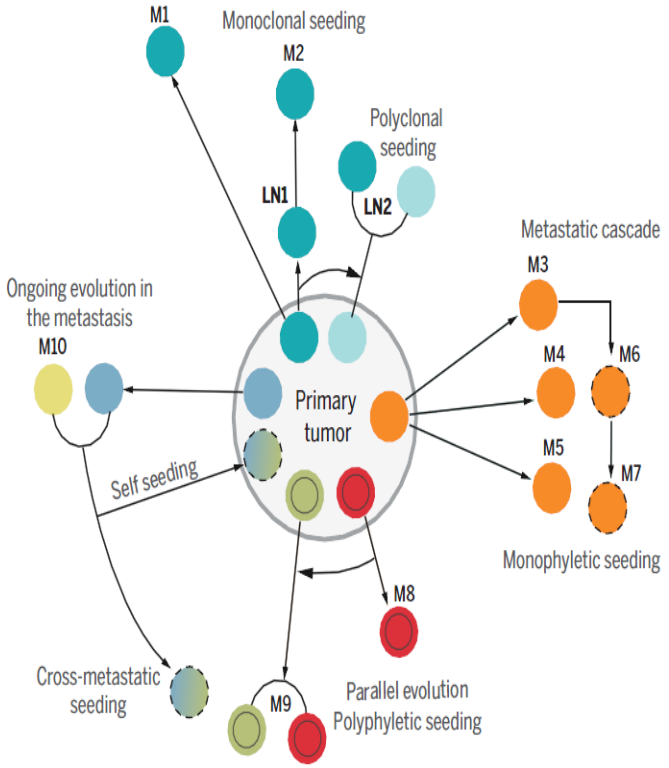
Oligomets definition

REVIEW

Metastasis as an evolutionary process

Samra Turajlic[1,2] and Charles Swanton[1,3]*

Very complex reality



Palma D, WCLC 2018

Oligomets definition

Characterisation and classification of oligometastatic disease: a European Society for Radiotherapy and Oncology and European Organisation for Research and Treatment of Cancer consensus recommendation

Matthias Guckenberger, Yolande Lievens, Angelique B Bouma, Laurence Collette, Andre Dekker, Nandita M deSouza, Anne-Marie C Dingemans, Beatrice Fournier, Coen Hurkmans, Frédéric E Lecouvet, Icro Meattini, Alejandra Méndez Romero, Umberto Ricardi, Nicola S Russell, Daniel H Schanne, Marta Scorsetti, Bertrand Tombal, Dirk Verellen, Christine Verfaillie, Piet Ost

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 Palma [i], Catherine Park [j], Umberto Ricardi [k], Marta Scorsetti [l], James Yu [m], Wendy A. Woodward [c]

Guckenberger M et al. Lancet Oncol 2020
Lievens Y et al. RO 2020

Oligomets definition

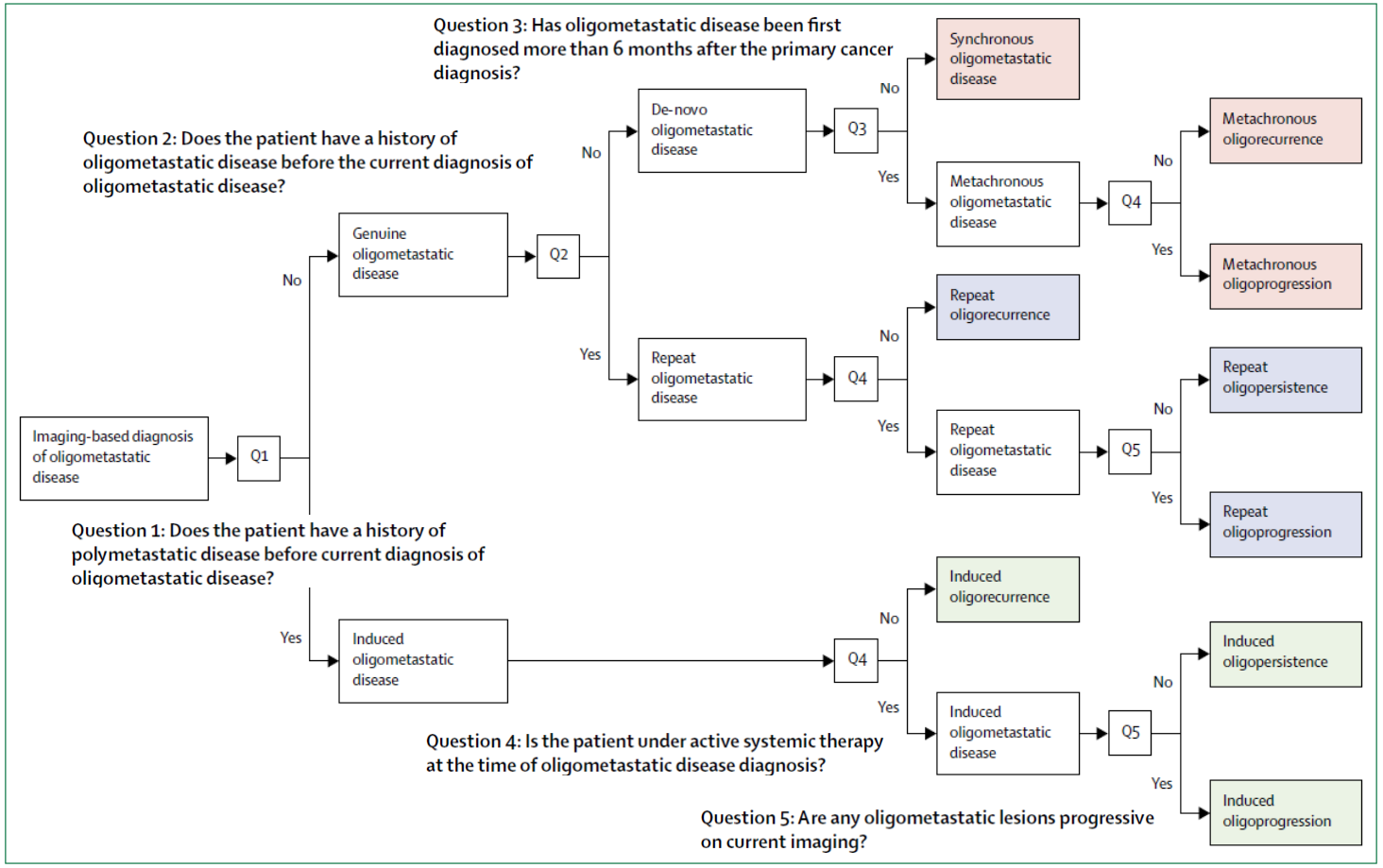
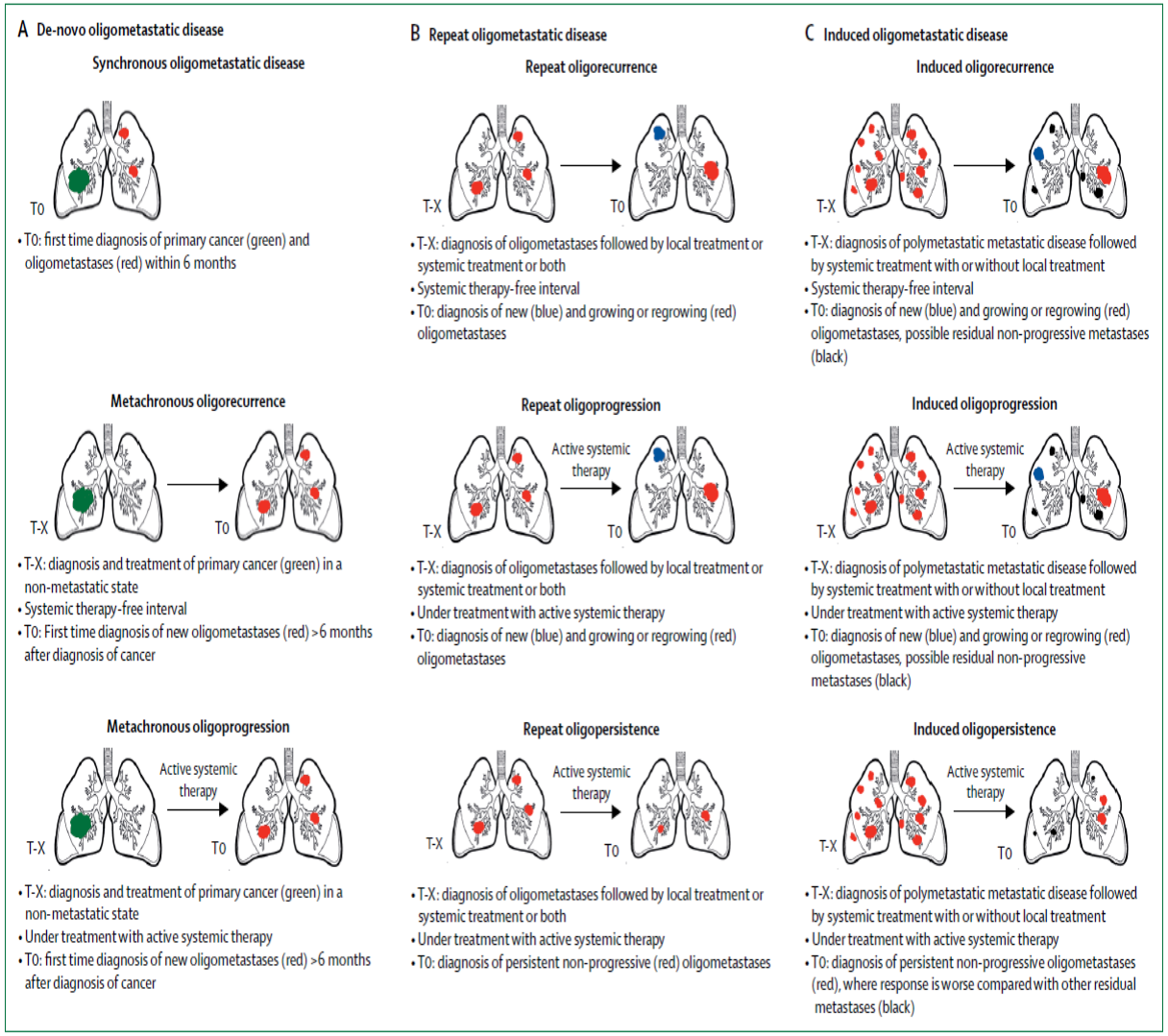


Figure 3: Decision tree for classification of oligometastatic disease

Guckenberger M et al. Lancet Oncol 2020

Oligomets definition



Characterisation and classification of oligometastatic disease: a European Society for Radiotherapy and Oncology and European Organisation for Research and Treatment of Cancer consensus recommendation

Oligometastases are a heterogeneous scenario

Guckenberger M et al. Lancet Oncol 2020

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Oligomets: rationale for local treatment

- Increase local control to prevent symptoms and maintain quality of life
- Ablate all visible metastases to prolong PFS
- Reduce tumor burden to prolong OS
- Ablate resistant clones to prolong systemic therapy efficacy
- Delay further disease progression to delay the need to start systemic therapy
- Synergize with systemic therapies to improve outcomes

Local ablative therapies: surgery

The Rise in Metastasectomy Across Cancer Types Over the Past Decade

Historically, the **role of surgery in patients with metastatic cancer** was predominately limited to **palliative or emergent operations**.

By the 1980s, a few centers were consistently performing **surgical resections for select patients** with metastatic cancer and reporting **promising results**. In addition, theories of cancer biology began to suggest that **in a subset of patients, oligometastatic disease might indeed represent the entire clinically relevant disease burden.**

In these cases, **complete resection was associated with prolonged disease-free survival and**, in some patients, **clinical cure**. As a result, in selected patients surgical resection is now considered for the treatment of oligometastatic disease to most anatomic sites from many different primary cancer types

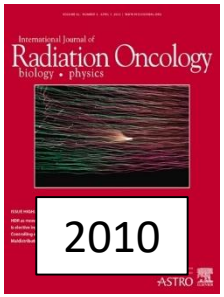
Bartlett EK et al, Cancer 2015

Local therapies for oligometastases

Metastasectomy increases local control with significant improvement of survival in selected patients

Most patients are inoperable for comorbidities or sites of metastases

Stereotactic body radiation therapy



AMERICAN SOCIETY FOR THERAPEUTIC RADIOLOGY AND ONCOLOGY (ASTRO) AND AMERICAN COLLEGE OF RADIOLOGY (ACR) PRACTICE GUIDELINE FOR THE PERFORMANCE OF STEREOTACTIC BODY RADIATION THERAPY

Louis Potters, M.D.,* Brian Kavanagh, M.D.,† James M. Galvin, D.Sc.,‡ James M. Hevezi, Ph.D.,§ Nora A. Janjan, M.D.,¶ David A. Larson, M.D., Ph.D.,** Minesh P. Mehta, M.D.,†† Samuel Ryu, M.D.,‡‡ Michael Steinberg, M.D.,§§ Robert Timmerman, M.D.,¶¶ James S. Welsh, M.D.,*** and Seth A. Rosenthal, M.D.†††

Stereotactic body radiation therapy (SBRT) is an external beam radiation therapy method used to very precisely deliver a **high dose of radiation** to an extracranial target within the body, using either a **single dose or a small number of fractions.**

The ability to deliver a **single or a few fractions of high-dose ionizing radiation** with **high targeting accuracy** and rapid dose falloff gradients encompassing tumors within a patient provides the basis for the development of SBRT.

Stereotactic body radiation therapy

SBRT PRO

- Non invasive
- Low toxicity
- Possible for almost every patient and every body site
- Possibility to treat multiple lesions simultaneously
- Possibility to be delivered with the majority of systemic therapies

SBRT CONS

- No histopathological confirmation
- No tissue for further analysis

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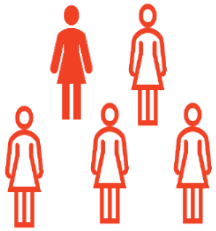
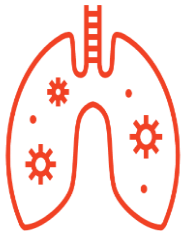
Oligometastases in breast cancer



- 5-10% of patients present with metastatic disease
- 20% of patients with localized disease will develop metastases within 5 years of their initial diagnosis



- Disease tends to reoccur at previously known sites of metastasis
- Oligometastatic breast cancer accounts for 20% of metastatic breast cancer patients

Terao M, et al. Transl Cancer Res 2020

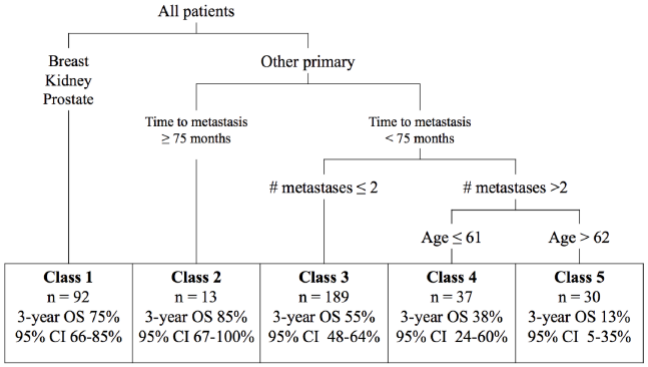
Oligometastases in breast cancer

Stereotactic body radiotherapy for oligometastases

- Patients most likely to benefit from stereotactic body radiotherapy have:
  - Long disease-free interval
  - Breast histology
  - One to three metastases
  - Small metastases
  - Higher radiation dose delivered (biologic effective dose >100 Gy)

Tree AC et al. Lancet Oncology 2013

Classification for long-term survival in oligometastatic patients treated with ablative radiotherapy: A multi-institutional pooled analysis



Hong JC et al. PlosONE 2018

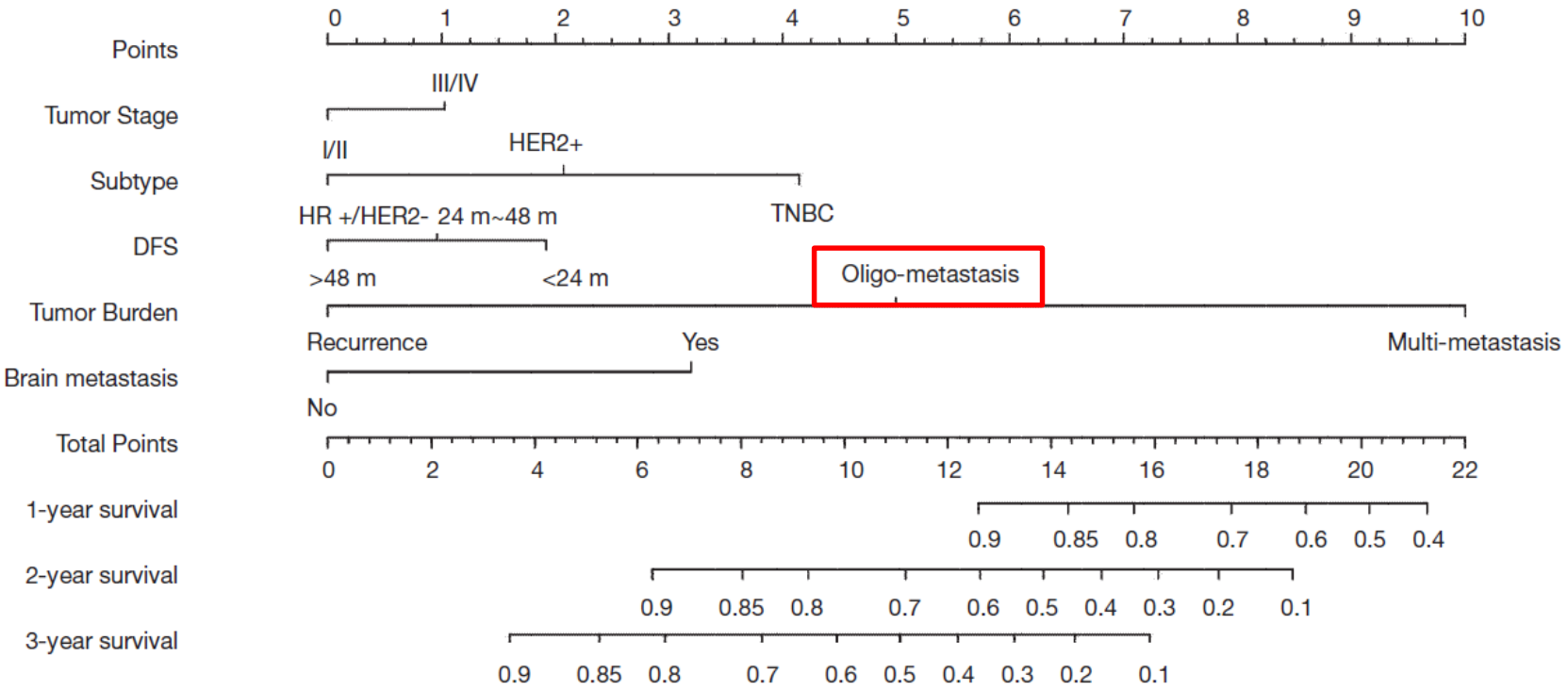
Clinical and Molecular Markers of Long-Term Survival After Oligometastasis-Directed Stereotactic Body Radiotherapy (SBRT)

Multivariate analysis			
Breast cancer histology	0.12	0.07-0.37	< .05
Distant metastasis-free interval	0.98	0.98-0.99	< .05
Time from metastatic diagnosis to end of protocol treatment	0.98	0.98-0.99	< .05
Rate of progression	1.44	1.24-1.82	< .05

Wong AC et al. Cancer 2016

Oligometastases in breast cancer

Development and validation of a nomogram in survival prediction among advanced breast cancer patients



Zhao J et al. Ann Transl Med 2020

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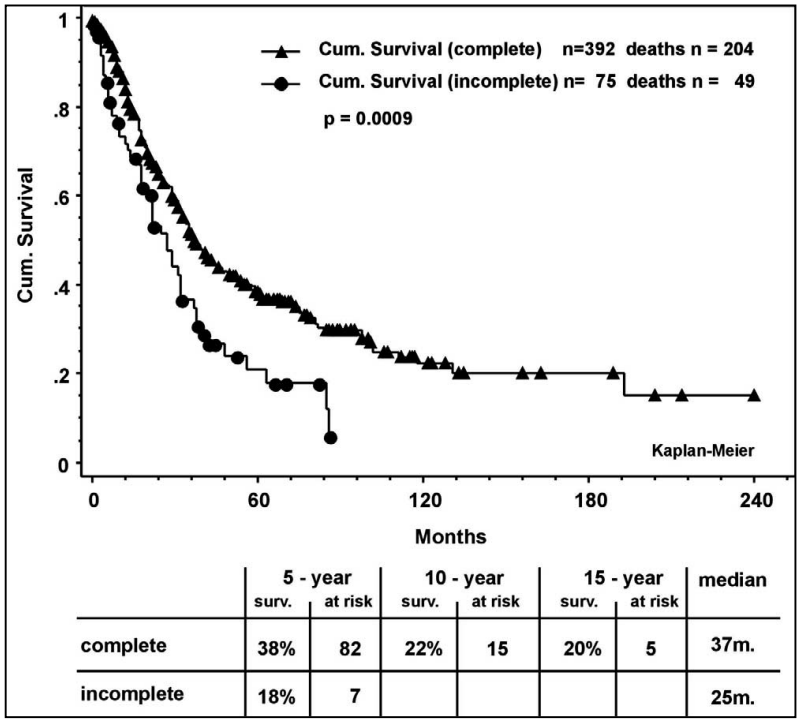
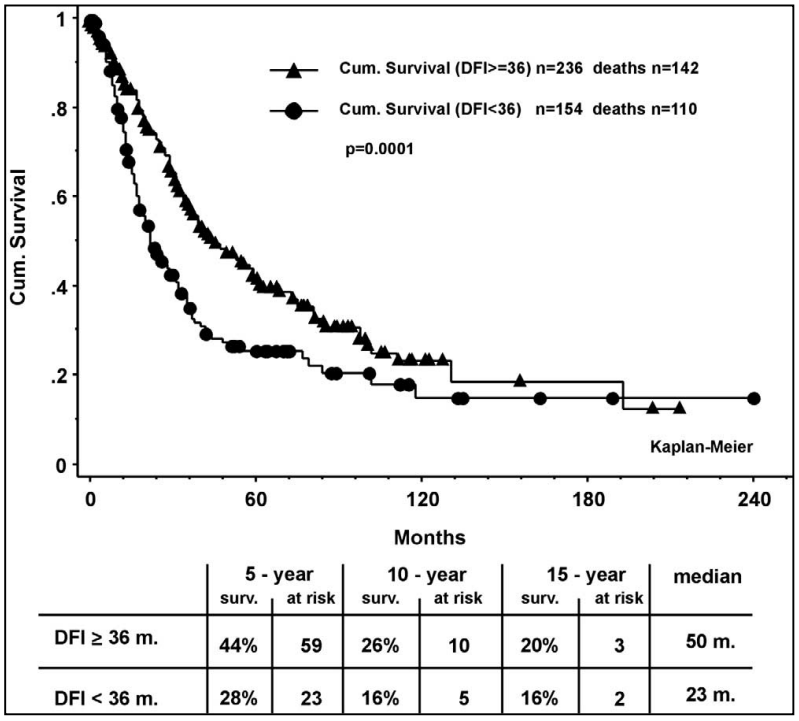
Clinical results: surgery

Results of lung metastasectomy from breast cancer: prognostic criteria on the basis of 467 cases of the international registry of lung metastases☆



	5 - year surv.	5 - year at risk	10 - year surv.	10 - year at risk	15 - year surv.	15 - year at risk	median
complete	38%	82	22%	15	20%	5	37m.
incomplete	18%	7					25m.

Complete resection better than incomplete



	5 - year surv.	5 - year at risk	10 - year surv.	10 - year at risk	15 - year surv.	15 - year at risk	median
DFI ≥ 36 m.	44%	59	26%	10	20%	3	50 m.
DFI < 36 m.	28%	23	16%	5	16%	2	23 m.

Better outcomes with longer disease free interval

Friedel G et al. European Journal of cardiothoracic surgery 2002

Clinical results: SBRT

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

Site of original primary tumor		
Breast	5 (15)	13 (20)
Colorectal	9 (27)	9 (14)
Lung	6 (18)	12 (18)
Prostate	2 (6)	14 (21)
Other	11 (33)	18 (27)

Palma DA et al. JCO 2020

Progression-Free Survival and Local Control After SABR for up to 5 Oligometastases: An Analysis From the Population-Based Phase 2 SABR-5 Trial

Characteristic	Percentage (n)
Patient factors	
Sex: female	32% (122)
ECOG PS: 0; 1; 2	60% (227); 37% (139); 4% (15)
Decline in ECOG PS in preceding 6 mo	6% (23)
Current smoker	9% (33)
Tumor factors	
Primary histology: prostate; colorectal; breast; lung; renal cell carcinoma; head and neck*; melanoma; other†	32% (122); 17% (64); 11% (43); 9% (33); 9% (34); 5% (17); 5% (17); 14% (52)

Baker S A et al. IJROPB 2022

Stereotactic ablative body radiotherapy in patients with oligometastatic cancers: a prospective, registry-based, single-arm, observational, evaluation study

Primary tumour diagnosis	
Prostate cancer	406 (28·6%)
Colorectal cancer	397 (27·9%)
Renal cancer	143 (10·1%)
Breast cancer	78 (5·5%)
Lung cancer	64 (4·5%)
Melanoma	58 (4·1%)
Other†	276 (19·4%)

Chalkidou A et al. Lancet Oncol 2021

Clinical results: SBRT

Stereotactic Body Radiation Therapy for Lung and Liver Oligometastases from Breast Cancer: Toxicity Data of a Prospective Non-Randomized Phase II Trial

To evaluate stereotactic body radiation therapy schedules for liver and lung lesions in oligometastatic breast cancer in terms of safety and efficacy

PRIMARY ENDPOINTS

- Local control
- Acute and late toxicities

SECONDARY ENDPOINTS

- Distant progression free survival
- Overall survival

Franceschini D et al. Current Oncology 2022

Clinical results: SBRT

Inclusion criteria

- >18 years
- Diagnosis of breast cancer
- ECOG performance status 0-2
- No life-threatening conditions
- Written informed consent
- Liver and lung lesions <5 with a maximum diameter of 5 cm
- Metastatic disease had to be confined to lungs and/or liver
- OR other metastatic sites stable or responding to chemotherapy

Exclusion criteria

- ECOG>2
- Pregnancy
- Patients with inability to consent

Clinical results: SBRT

Age		
Mean	61 (Range 32–87)	
Performance Status (ECOG)	*n*	%
0	40	63%
1	21	33%
≥2	3	5%
Histology	*n.*	%
Ductal infiltrating carcinoma	53	83%
Lobular infiltrating carcinoma	5	8%
Other	6	9%
Molecular classification	n.	%
Luminal A	18	28%
Luminal B	18	28%
HER2 enriched	14	22%
Triple negative	13	20%

Disease-Free Interval (Years)		
Mean (Range)	**4.66 (0–17.8)**	
Type of metastatic disease	n.	%
Synchronous	15	23%
Metachronous	49	77%
Oligometastatic status at onset of disease	n.	%
No	59	92%
Yes	5	8%
Previous local ablative treatments (LAT)	n.	%
No	44	69%
Yes	20	31%
Lines of systemic therapies before SBRT	n.	%
0	5	8%
1	23	36%
2	13	20%
≥3	23	36%
Type of oligometastases	n.	%
De-novo	15	23%
Repeat	6	10%
Induced	43	67%
n. of radiated lesions	n.	%
1	44	69%
2	15	23%
≥3	5	8%
Organs receiving SBRT	n.	%
Lung	23	36%
Liver	40	63%
Both	1	2%
Number of organs receiving SBRT	n.	%
1	63	98%
2	1	2%
Disease extra SBRT target	n.	%
Yes	23	36%
No	41	64%
Concomitant systemic therapy	n.	%
Yes	54	84%
No	10	16%
BED		
Mean	139.983	
Max	262.5	
Min	100	

Clinical results: SBRT

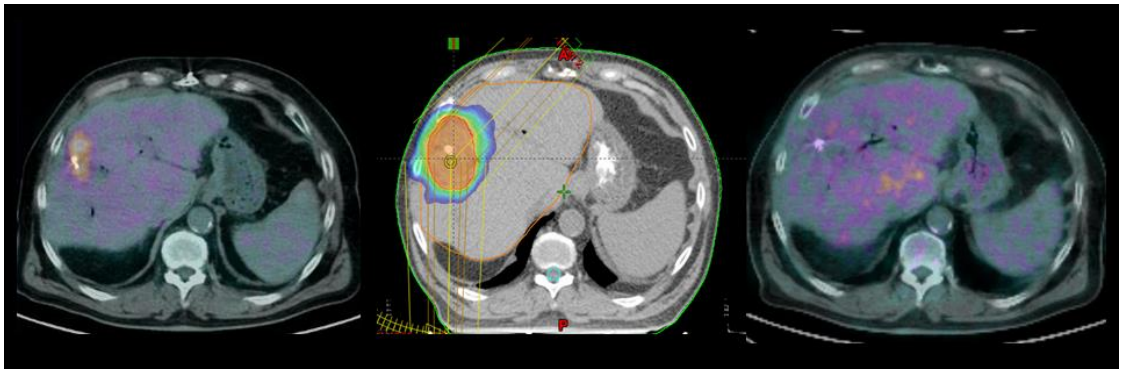
Acute toxicity	15 (23%)
G1	
Fatigue	7 (11%)
Nausea and vomiting	4 (6%)
Abdominal pain	3 (5%)
Fever	1 (2%)
Malaise	1 (2%)
Chest pain	1 (2%)
G2	
Nausea and vomiting	2 (3%)

Late toxicity	9 (14%)
G1	
Chest pain	2 (3%)
Cough	1 (2%)
Pneumonia	1 (2%)
Gastritis	1 (2%)
Gastrointestinal pain	1 (2%)
Rib fracture	1 (2%)
G2	
Erythema	1 (2%)
Duodenal ulcer	1 (2%)

No patient experienced any ≥G3 toxicity

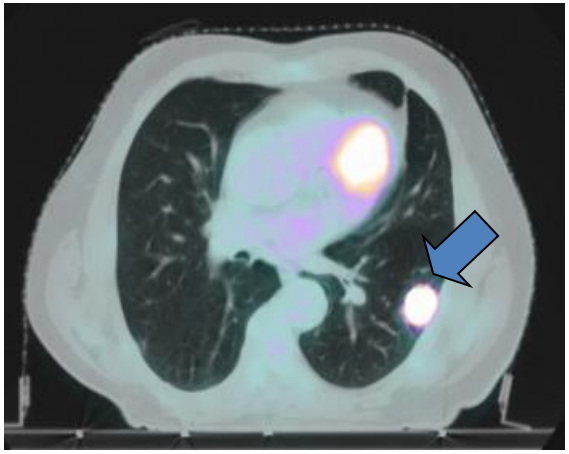
COPRIMARY ENDPOINT OF TOXICITY WAS MET
SURVIVAL OUTCOMES ARE STILL MATURING

Clinical results: SBRT

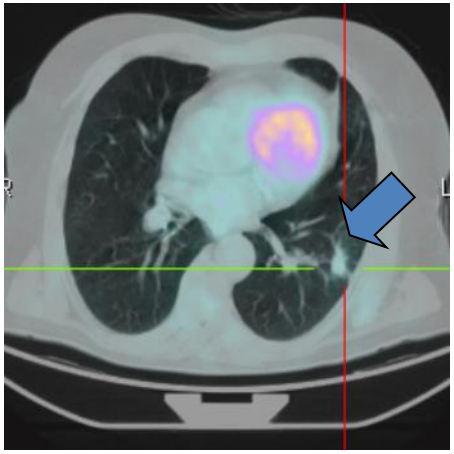


PET – CT

PET – CT post



PET/CT pre SBRT



PET/CT: CR at 6 months

Clinical results: SBRT

Stereotactic body radiotherapy to treat breast cancer oligometastases: A systematic review with meta-analysis

Selection criteria:

- Prospective and retrospective studies, > 10 patients and > 18 months FUP.
- BC oligometastases were defined as 5 lesions, treated by SABR with any fractionation or technique.
- Single or fractionated treatment delivered to any site (bone, liver, lung, or mixed sites) were included.
- SABR was defined as radiotherapy treatment with doses per fraction ≥ 5 Gy with ≤ 10 fractions.

Author	Milano	Scorsetti	Trovo	Onal	David	Milano 1	Milano 2	Weykamp	Li	Tan	Weitjunga
Design	R	R	P	R	P	P	P	R	R	R	R
Patients	40	33	54	22	15	36	12	46	10	120	79
Lesions	85	43	92	29	19	83	21	58	10	193	103
Age (median)	55	57	57	55	61	60	44	55	54	55	56
Number of mets (median)	≤5	≤5	≤5	≤3	≤3	≤5	≤5	≤3	≤5	≤5	≤5
Site of mets	Mixed	Mixed	Mixed	Mixed	Bone only	Mixed	Bone only	Mixed	Bone only	Mixed	Mixed
KPS (median)	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
Number of sites (median)	2	2	2	1	1	1	1	1	2	1	1
ER/PR%	63	70	80	77	73	56	92	76	80	83	84
Her-2 (+) %	NR	48	20	32	20	NR	NR	20	20	17	10
RT technique	VMAT	VMAT	IMRT	IMRT	IMRT	NR	NR	IMRT	3DRT	3DRT/IMRT	IMRT
SBRT total dose Gy/fractions (median)	NR	75/3fx	36/3fx	54/3 fx	20/1fx	50/10fx	50/10fx	28/3fx	20/1fx	NR	BED >60 Gy4
Follow-up (median) months	56	24	30	18	24	52	52	21	32	50	50

Ten studies/467 patients/653 treated metastases

Viani GA et al. RO 2021

Clinical results: SBRT

(a)

Study	Number	Estimative	1-y LC (CI95%)
Scorsetti	43	93 100	97%(93-100%)
Trovo	92	94 100	99%(94-100%)
Onal	29	93 100	98%(93-100%)
David	19	90 100	97%(90-100%)
Milano 1	83	97 100	99%(97-100%)
Milano 2	21	91 100	97%(91-100%)
Weykamp	58	84 98	91%(84-98%)
Li	10	83 100	95%(83-100%)
Tan	193	83 94	89%(83-94%)
Witejunga	103	94 100	97%(94-100%)
Total	*651*		*97%(95-99%) I2=30%,p=0.160*

80 85 90 95 100

(b)

Study	Number	Estimative	2-y LC (CI95%)
Milano	85	71 88	80%(71-88%)
Scorsetti	43	82 99	90%(82-99%)
Trovo	92	94 100	97%(94-100%)
Onal	29	73 98	86%(73-98%)
David	19	90 100	97%(90-100%)
Milano 1	83	64 83	73%(90-100%)
Milano 2	21	91 100	97%(91-100%)
Weykamp	58	79 96	88%(79-96%)
Li	10	71 100	90(71-100%)
Tan	193	80 92	86%(80-92%)
Witejunga	103	83 96	90%(83-96%)
Total	*736*		*90%(84-94%) I2=69%,p=0.06*

60 65 70 75 80 85 90 95 100

Fig. 1. Forrest plot of studies (a) 1-y Local control (b) 2-y local control.

Local Control at 2 years		
Bone only	0.05	0.297
Prospective design	0.009	0.210
%ER/PR	0.05	0.001
%HER-2 (+)	0.001	0.978
$\leq$ 3 sites	−0.009	0.858
BEDGy10	−0.001	0.802

Viani GA et al. RO 2021

Clinical results: SBRT

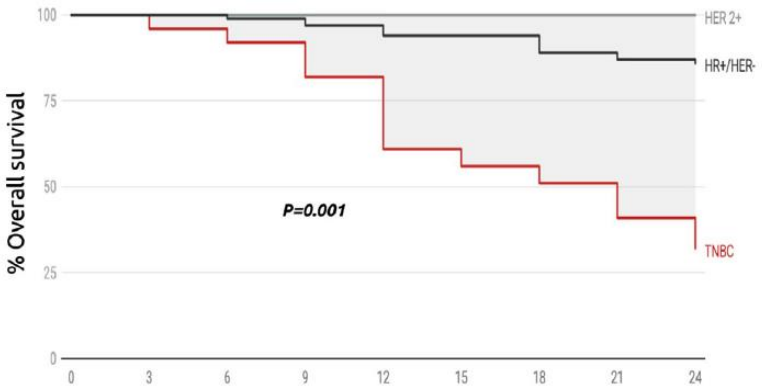
(a)

Study	Number	1-y OS (CI95%)
Milano	40	95%(88-100%)
Scorsetti	33	94%(86-100%)
Trovo	54	98%(94-100%)
Onal	22	86%(72-100%)
David	15	97%(88-100%)
Milano 1	36	92%(82-100%)
Milano 2	12	96%(86-100%)
Weykamp	46	85%(74 - 95%)
Li	10	95%(83-100%)
Tan	120	82.5%(76-90%)
Witejunga	79	95% (90-100%)
Total	*467*	*93%(89-96%) I2=53%,p=0.08*

(b)

Study	Number	2-y OS (CI95%)
Milano	40	75%(61-88%)
Scorsetti	33	67%(50-82%)
Trovo	54	94%(88-100%)
Onal	22	54%(38-75%)
David	15	97%(88-100%)
Milano 1	36	61%(47-75%)
Milano 2	12	78%(64-91%)
Weykamp	46	96%(85-100%)
Li	10	90%(71-100)
Tan	120	70%(62-78%)
Witejunga	79	91%(84-97%)
Total	*467*	*81%(72-88%) I2=54%,p=0.07*

Fig. 2. Forrest plot of studies (a) 1-y Overall survival (b) 2-y overall survival.



Overall Survival at 2 years		
Bone only	0.20	0.01
Prospective design	0.18	0.001
%ER/PR	0.005	0.230
%HER-2 (+)	−0.007	0.105
≤ 3 sites	0.08	0.491
BEDGy10	−0.002	0.212

Viani GA et al. RO 2021

Clinical results: SBRT

EMBRACING CHANGE
ADVANCING PERSON-CENTERED CARE
ASTRO
ANNUAL MEETING

Consolidative Use of Radiotherapy to Block (CURB) Oligoprogression: Interim Analysis of the First Randomized Study of Stereotactic Body Radiotherapy in Patients with Oligoprogressive Metastatic Cancers of the Lung and Breast

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Randomization 1:1

Arm 1
Palliative Standard of care (SOC) + SBRT

Arm 2
Palliative SOC (consider SBRT/Rt at further PD)

Inclusion Criteria:
Oligoprogressive NSCLC or Breast cancer
≥ 1 line of systemic therapy
≤ 5 Extra-cranial oligoprogressive lesions

Accrual Goal:
160 patients (current accrual 106/160)

End points:
- → PFS
- → OS, Toxicity, QoL

Clinical results: SBRT

2019-2021

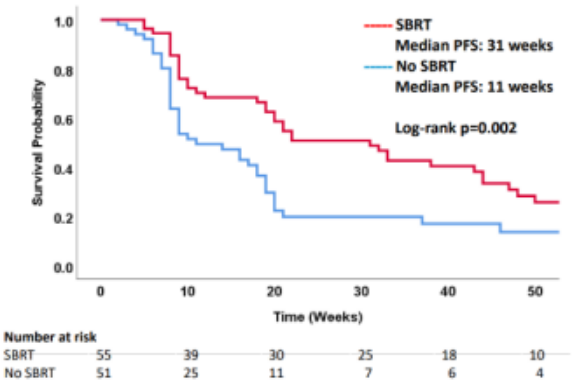
106 patients:

59 NSCL

47 Breast Cancer

Stratification:
Primary tumor histology
Number of progressive metastases (1 vs. > 1)
Presence of driven mutation (receptor/mutation status)
Prior immunotherapy

Results – Progression-Free Survival (Entire Cohort)



Median follow up: 45 weeks; 58 weeks for living patients.

78 of 106 patients further progressed.

39 of 106 (37%) died.

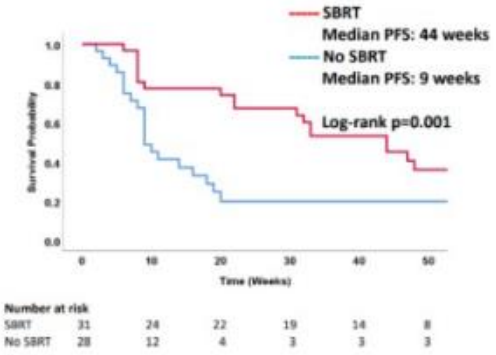
Median PFS: 3.2 m in SOC vs. 7.2 m in SBRT

Grade≥ 2 occurred in 8 patients after SBRT (15%)

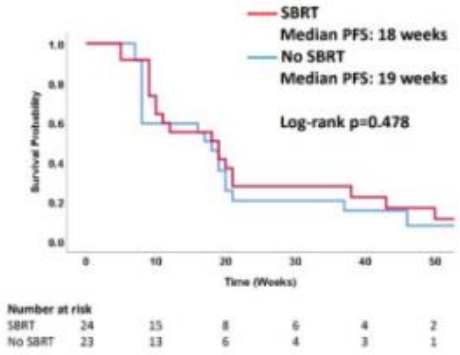
Clinical results: SBRT

Results – PFS by Primary Disease Sites

Lung (40 of 59 progressed)



Breast (38 of 47 progressed)



Second-line systemic therapy

Non -small -cell lung cancer (NSCLC)

- PDL -1 positive; Pembrolizumab; PFS= 4 months (Lancet 2016)
- After platinum: Ramucirumab + Docetaxel; PFS = 4.5 months (Lancet 2014)
- After first -line EGFR -TKI: Osimertinib; PFS = 10.1 months (NEJM 2017)
- After Osimertinib: No standard

Breast

- ER+ after first -line ET: Fulvestrant + CDK4/6 inhibitor; PFS = 9.5 -20.5 months
- TNBC after first -line: No standard; PFS = 2.3 -5.6 months

Clinical results: SBRT

NRG-BR002: A phase IIR/III trial of standard of care systemic therapy with or without stereotactic body radiotherapy (SBRT) and/or surgical resection (SR) for newly oligometastatic breast cancer (NCT02364557).

OMBC pts with ≤ 4 extracranial mets on standard imaging with controlled primary disease were eligible if on first line SOC ST for ≤ 12 months without progression.

ARM 1 – SOC ST
65 pts

ARM 2 – SOC ST with MDT of all mets
60 pts

Chmura SJ et al., ASCO 2022

Clinical results: SBRT

- **Median PFS**: 23 vs 19.5 months
- **24 and 36-mo PFS:** 45.7% and 32.8% vs 46.8 and 38.1; HR (70% CI): 0.92 (0.71, 1.17); 1-sided log-rank p = 0.36.
- **Median OS** was not reached
- **36-mo OS**: 71.8% vs 68.9% (2-sided log-rank p = 0.54).
- There were **no grade 5 treatment-related adverse events** (AEs), 1 grade 4 AE in ARM 1, and 9.7% and 5.3% grade 3 AEs in ARMS 1 and 2, respectively.

Clinical results: SBRT

- OM-BC is overall associated with relatively favorable long-term outcome with approximately 70 % of OS probability at 3 years
- Median PFS with systemic therapy-only over-performed than expected
- The exploratory subgroup analysis for PFS of the NRG-BR002 trial captured a trend forimproved PFS in favor of the addition of ablative strategies in patientswith more than one metastasis, while an effect in the opposite directionwas instead captured for TN subgroup

We need a better understanding of OMBC biology to fine our results

Agenda

- Definition of oligometastases
- Local therapies for oligometastases
- Oligometastases in breast cancer
- Clinical results
- Future directions

Who is the real OMBC patient?

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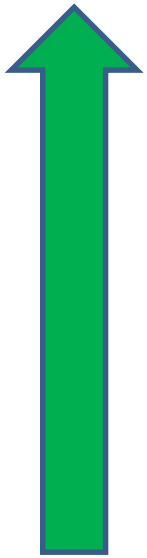
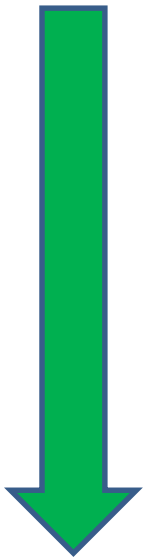
Easily accessible



Difficult availability

- Clinical
- Imaging
- Genetic/epigenetic

Less informative

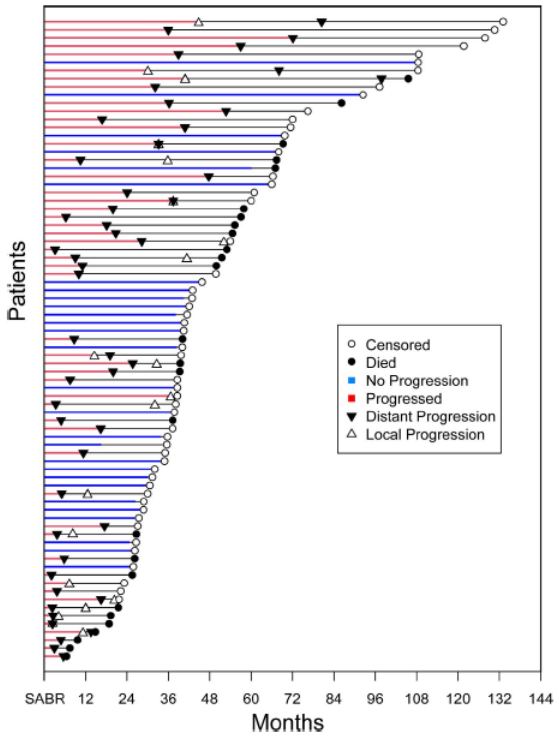


Highly informative

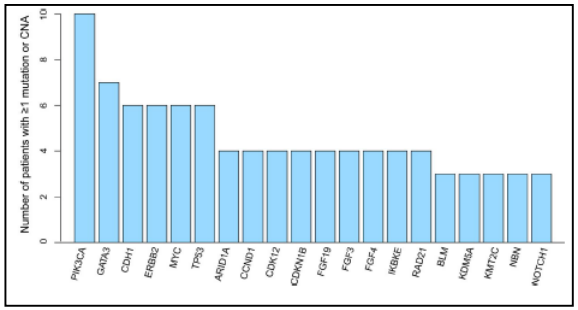
OMBC: selection

Long-term disease control and survival observed after stereotactic ablative body radiotherapy for oligometastatic breast cancer

79 patients



Median OS 86 months
Median PFS 33 months



Less than 5 years from diagnosis to SABR and triple-negative breast cancer (TNBC) were associated with worse OS. Advanced T stage, any prior chemotherapy, and TNBC were associated with worse PFS. Alterations in CEBPB, RB1, TBX3, PTEN, and CDK4 were associated with worse survival outcomes.

Wijetunga NA et al. Cancer Medicine 2020

Take Home Message

There are different possible endpoints in the oligometastatic world:

- *Oligometastatic breast cancer* exists, although it is less studied and represented in clinical trials
- *Radiotherapy* represents the ideal treatment for oligometastases thanks to high efficacy and low toxicity
- *Clinical trials* focused on oligometastatic breast cancer are awaited and necessary to create strong evidences
- *Identification and selection of patients* are crucial in breast cancer due to its heterogeneity, translational research is needed
- *Different kinds* of oligometastases could require the same treatment with *different endpoints*, consider novel endpoints

Consider SBRT as another "line of therapy" in the treatment arsenal for metastatic cancer.