

XXXIII CONGRESSO NAZIONALE AIRO

# AIRO2023

BOLOGNA,  
27-29 OTTOBRE 2023

PALAZZO DEI CONGRESSI

Radioterapia Oncologica: l'evoluzione al servizio dei pazienti



Associazione Italiana  
Radioterapia e Oncologia clinica



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## Multiple oligometastases treated with single course stereotactic ablative radiotherapy (SABR): outcome and predictive factors

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## BACKGROUND

- Oligometastatic disease (OMD), defined as 1-5 metastatic lesions, can be safely treated with SRT
- Delivering SRT in patients with multiple metastases remains a challenge from both clinical and technical perspectives
- Only a few patients with 3 or more lesions have been included in most studies on the oligometastatic disease

## PURPOSE

- To evaluate survival and toxicity of a large sample of patients affected by multiple oligometastases treated with single course SABR
- To investigate the association of clinical features on patients' outcome

## METHODS

- Retrospective cohort of OM patients with 3 to 5 extracranial metastases from any solid tumour treated with a single course of SBRT from 2012 to 2020.
- All patients were treated with volumetric modulated arc therapy (VMAT) technique with ablative intent.
- Endpoints of the analysis were overall survival (OS), progression free survival (PFS), local control (LC) and pattern of toxicity.
- Univariate analysis and multivariate Cox regression (backward conditional) model were carried out to evaluate the association between clinical factors and survival.

## BASELINE CHARACTERISTICS

N=136

<b>Age (years)</b>	
Mean	67.8
Range	28.0-87.1
<b>Sex</b>	
Male	80 (58,8)
Female	56 (41,2)
<b>Performance status</b>	
0	91 (66,9)
1	36 (26,5)
2	9 (6,6)
<b>Primary tumor site</b>	
Colorectal	60 (44,1)
Lung	16 (11,8)
Breast	7 (5,1)
Prostate	8 (5,9)
Other	45 (33,1)
<b>Primary tumor histology</b>	
Adenocarcinoma	110 (80,8)
Other	26 (19,2)
<b>Metastatic presentation</b>	
Synchronous	39 (28,7)
Metachronous	97 (71,3)
<b>Disease-free interval (months)</b>	
Range	14,1 0-222,1

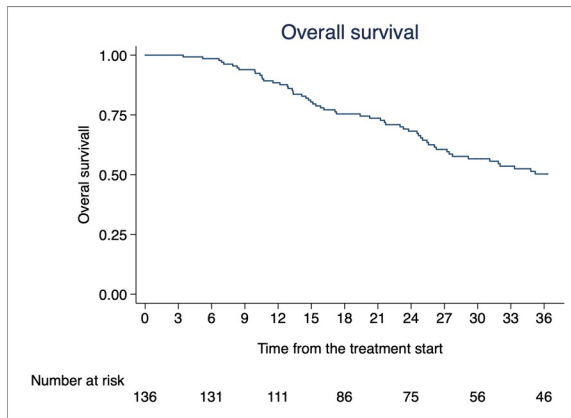
<b>Oligometastatic presentation</b>	
De novo sincrono	6 (4,4)
De novo metacrono oligorecurrence	20 (14,7)
De novo metacrono oligoprogression	2 (1,5)
Repeat oligorecurrence	25 (18,4)
Induced oligorecurrence	59 (43,4)
Induced oligopersistence	16 (11,8)
Induced oligoprogression	8 (5,9)
<b>Prior local ablative treatment</b>	
No	82 (60,3)
Yes	54 (39,7)
<b>Prior systemic therapy</b>	
No	36 (26,5)
1 line	43 (31,6)
2 lines	35 (25,7)
≥3 lines	22 (16,2)
<b>Number of metastases treated</b>	
3	102 (75,0)
4	26 (19,1)
5	8 (5,9)
<b>Total tumour volume (cc)</b>	
Median	19,1
Range	0,6 – 245,1

<b>Irradiated lesions sites</b>	
Lung	47 (34,6)
Liver	31 (22,8)
Lymph nodes	19 (14,0)
Lung + lymph node	11 (8,1)
Lung + liver	10 (7,3)
Others	11 (8,1)
<b>Number of treated organs</b>	
1	97 (71,3)
2	36 (26,5)
3	3 (2,2)
<b>Presence of extra-target disease</b>	
No	119 (87,5)
Yes	17 (12,5)
<b>Concomitant systemic therapy</b>	
No	102 (75,0)
Yes	34 (25,0)
<b>Dose (EQD2, Gy)</b>	
Median	83,3
Range	37,5 – 218,7
<50 Gy	18 (13,2)
50-70 Gy	39 (28,7)
70-100 Gy	64 (47,1)
>100Gy	15 (11,0)

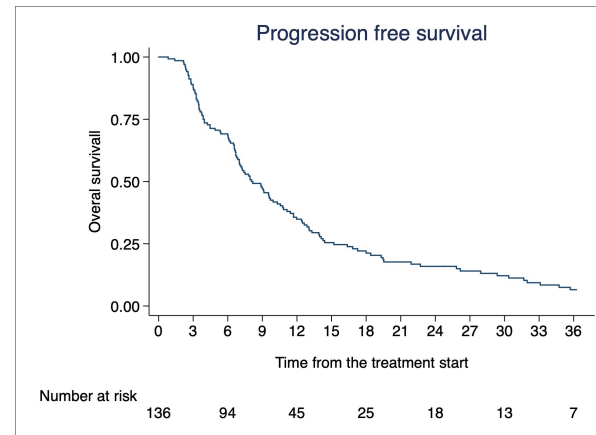


## RESULTS

Median follow-up was 25.0 months



1yr OS → 88.4%  
3yrs OS → 50.2%



mPFS → 8.06 months  
1yr PFS → 34.8%  
3yrs PFS → 6.5%

- Rates of LC at 1 and 3 years were 89.3% and 76.5%.
- In terms of toxicity, no grade 3 or higher toxicity was reported both in the acute and late settings.

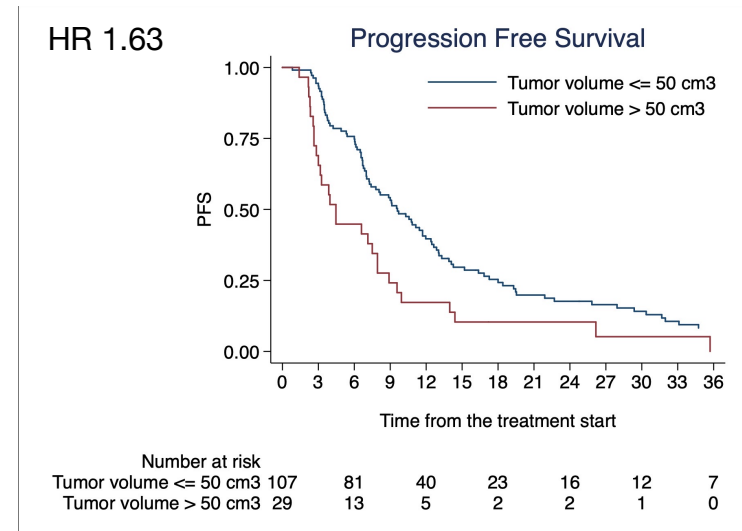
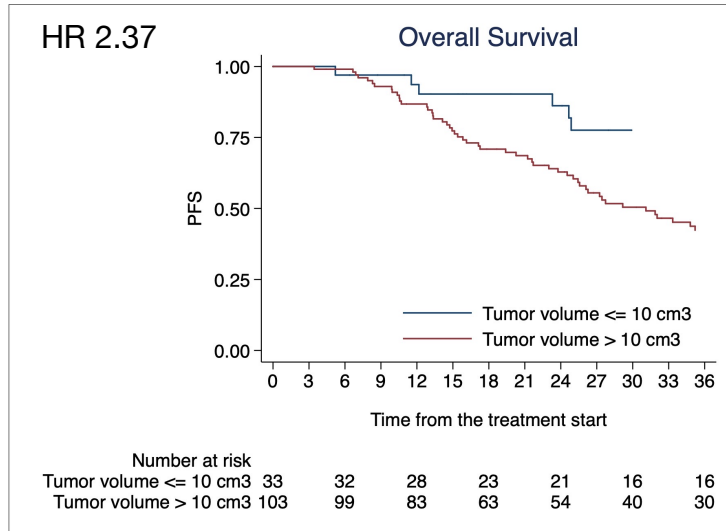
## UNIVARIATE ANALYSIS

Four factors were associated with worse OS:

- |   |           |
|---|-----------|
| <b>1. Higher age</b>                          | $p=0.003$ |
| <b>2. Higher ECOG performance status (PS)</b> | $p<0.001$ |
| <b>3. Lower EQD2</b>                          | $p=0.024$ |
| <b>4. Higher total tumour volume (TTV)</b>    | $p<0.001$ |

## MULTIVARIATE ANALYSIS

Only higher TTV was an independent predictive factor of worse OS and PFS.





## CONCLUSIONS

- Patients affected by 3 to 5 oligometastases can be safely treated with a single course of SABR with encouraging survival outcomes
- Total tumor volume seems to be a better predictor of survival than the number of lesions treated



- Prospective trials are expected to confirm these results on larger population including patients with 1 -2 or more than 6 metastases or in case of intracranial disease

