

# STEREOTASSI EXTRACRANICA NEI TRATTAMENTI DEL TUMORE POLMONARE AL PRIMO STADIO E DELLE OLIGOMETASTASI DA DIVERSI TUMORI PRIMITIVI: ESPERIENZA DI UN SINGOLO CENTRO

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Farmaci innovativi e ipofrazionamento

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# Disclosure of interest



# Definition of SBRT

A method of External Beam Radiotherapy (EBRT) that accurately delivers a high irradiation dose to an extracranial target in one or few treatment fractions

*(Guckenberger et al, Strahlenter Onkol, 2014)*

A Radiotherapy procedure that is highly effective in controlling early stage primary and oligometastatic cancers

*(Benedict et al, SBRT: The report of TG101, 2010)*

**Nowadays however, a commonly accepted definition of SBRT does not exist.**

# SBRT Requirements

- Large doses in few fractions (which result in high BED)
- Conformation of high doses to the target and rapid fall-off doses away from the target
- High level of confidence in the accuracy of the entire treatment delivery process: the entire SBRT workflow must be systematically optimized

Staging

Multidisciplinary discussion for indications

Tumor-site adjusted imaging (appropriate OARs and Target definitions)

Highly conformal treatment

Image-Guided patient set-up

Intrafraction motion management

- Adequately performed with either traditional Linac equipped with IGRT, accelerators specifically adapted for SBRT or dedicated delivery systems

# Oligometastatic patients

A subset of patients with metastatic disease ( $m < 3$ ?  $m < 5$  ?) that might be amenable to curative therapy.

Multiple studies demonstrating long term Overall Survival in this subgroup of patients when treated with aggressive local therapy (Surgery, SBRT)

Historically, use of RT for treatment of Mts was restricted to palliation

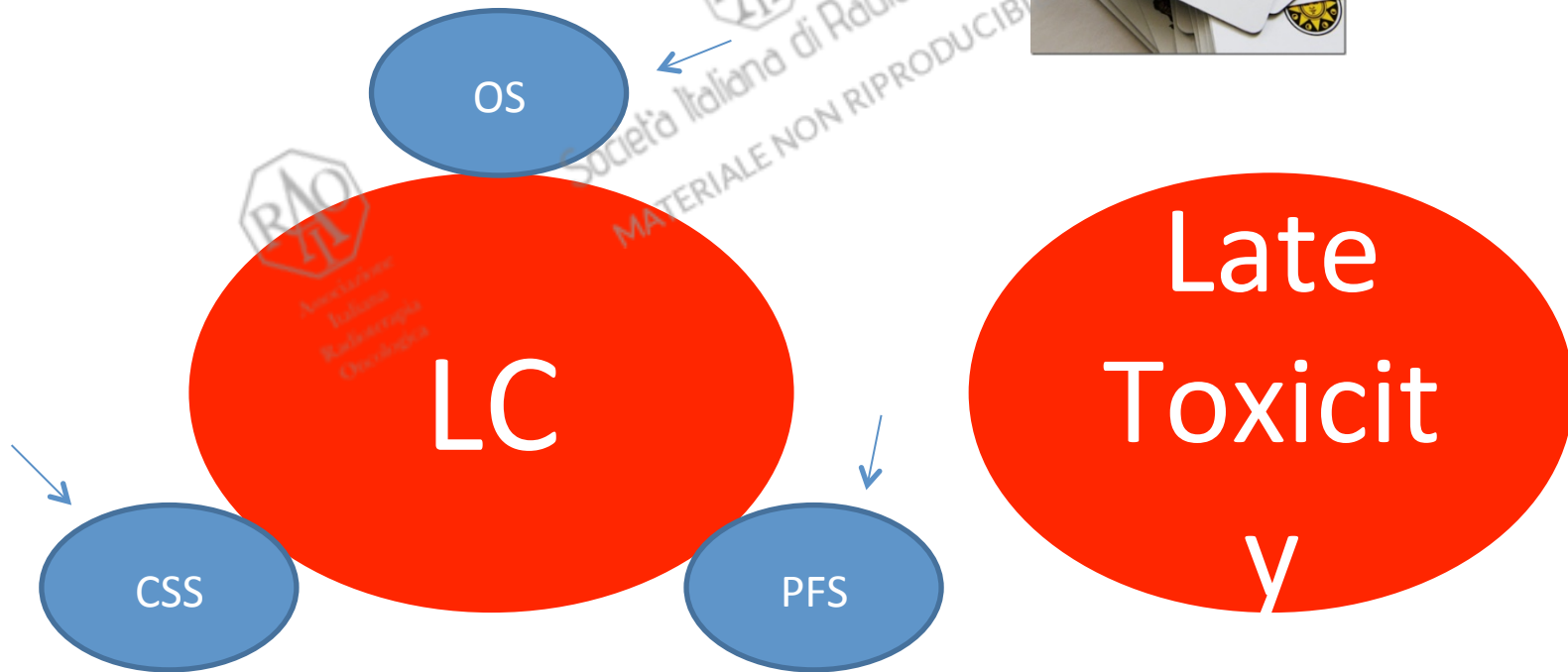
Hellman S., Weichselbaum RR  
*Oligometastases*  
JCO 1995; 13(1):8-10



# Aims of the study

To retrospectively analyze the efficacy and the feasibility of Stereotactic Body Radiation Therapy (SBRT) in the treatment of extracranial oligometastases from multiple primary cancers and...

its efficacy in treating early stage lung cancer



# Patients demographics

| Parameter                       | Number of cases     |
|---------------------------------|---------------------|
| <i>Number of patients</i>       | 97                  |
| <i>Median age</i> (range)       | 71 (38-88)          |
| <i>Median KPS</i> (range)       | 90 (70-100)         |
| <i>Median CCS</i>               | 3                   |
| <i>Primary tumor</i>            |                     |
| Lung ( <b>primitive</b> +mets)* | 35 ( <b>18</b> +17) |
| Prostate                        | 22                  |
| Kidney                          | 8                   |
| Rectum                          | 18                  |
| Others                          | 14                  |

# Patients demographics

| Parameter              | Number of cases |
|------------------------|-----------------|
| <i>Treatment site</i>  |                 |
| Lung (primitive+ mets) | 59 (18+41)      |
| Nodes                  | 29              |
| Liver                  | 2               |
| Head and Neck          | 5               |
| Adrenal gland          | 1               |
| Bone                   | 1               |



# Treatment characteristics

Personalized immobilization

Median GTV volume: 6.46 cc (range 0.16-110)

All the patients were treated with Elekta Synergy

Median total dose: 35 Gy (range 12-48 Gy)

Plan objective: cover 95% of the PTV with 95% of the dose

Setup verification with daily Cone Beam CT



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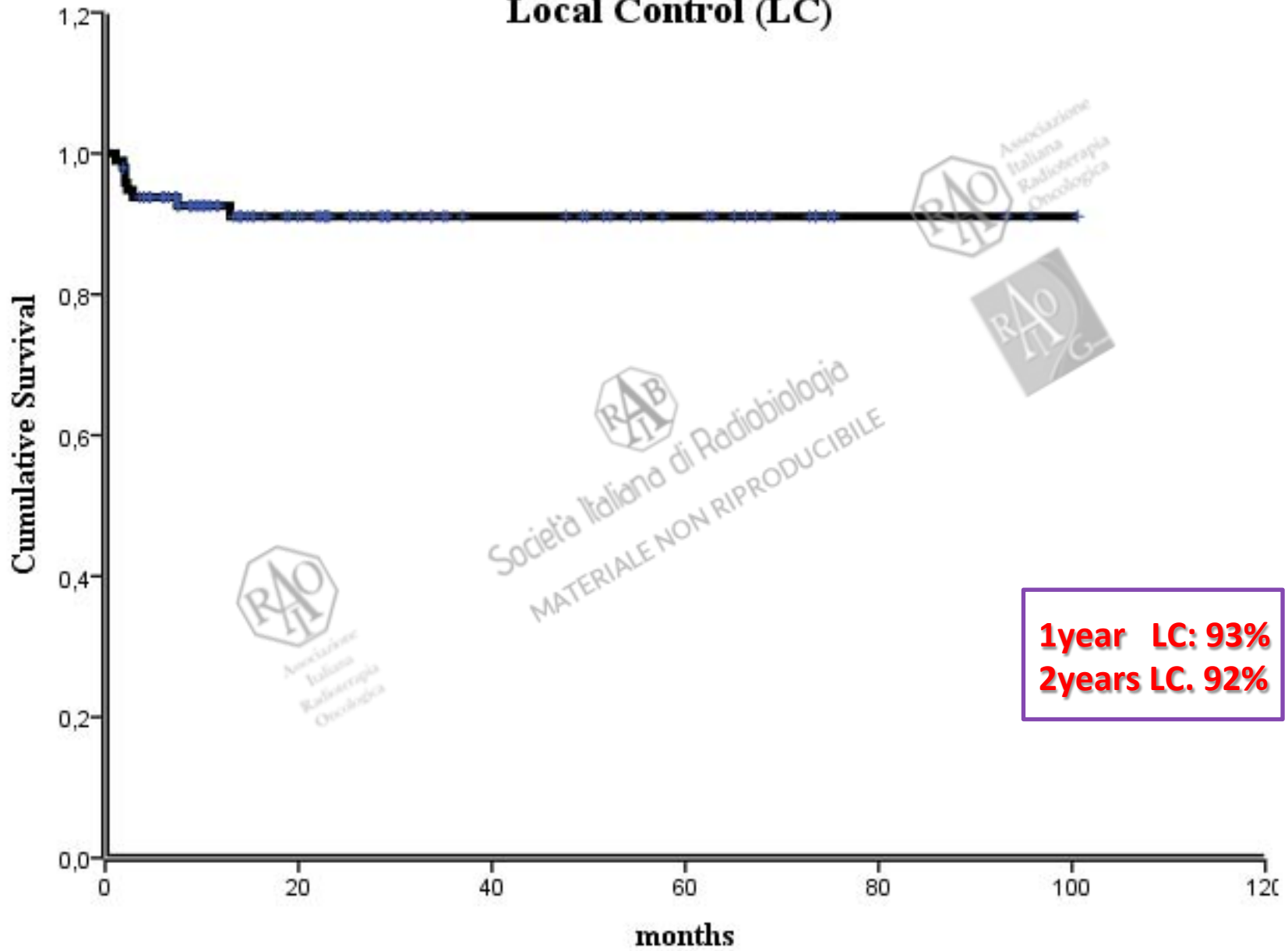
# Results



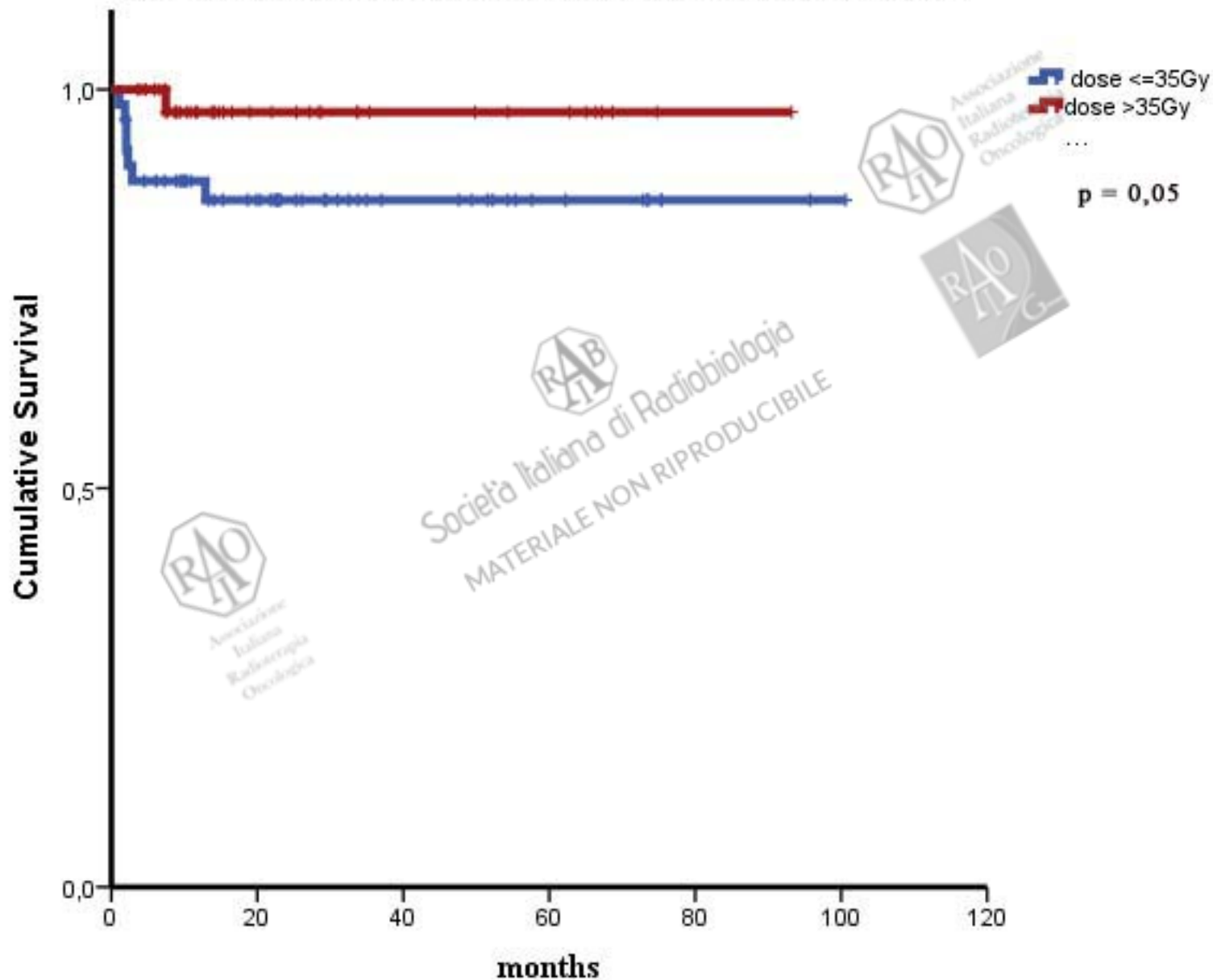
| Parameter                    | Number of events |
|------------------------------|------------------|
| <i>Local failures</i>        | 8                |
| <i>Disease progression *</i> | 55               |
| <i>Cancer related death</i>  | 36               |
| <i>Death from all causes</i> | 41               |

| Parameter                           | Months       |
|-------------------------------------|--------------|
| <i>Median Follow-up (range)</i>     | 22.3 (2-100) |
| <i>Median time to local failure</i> | 20           |

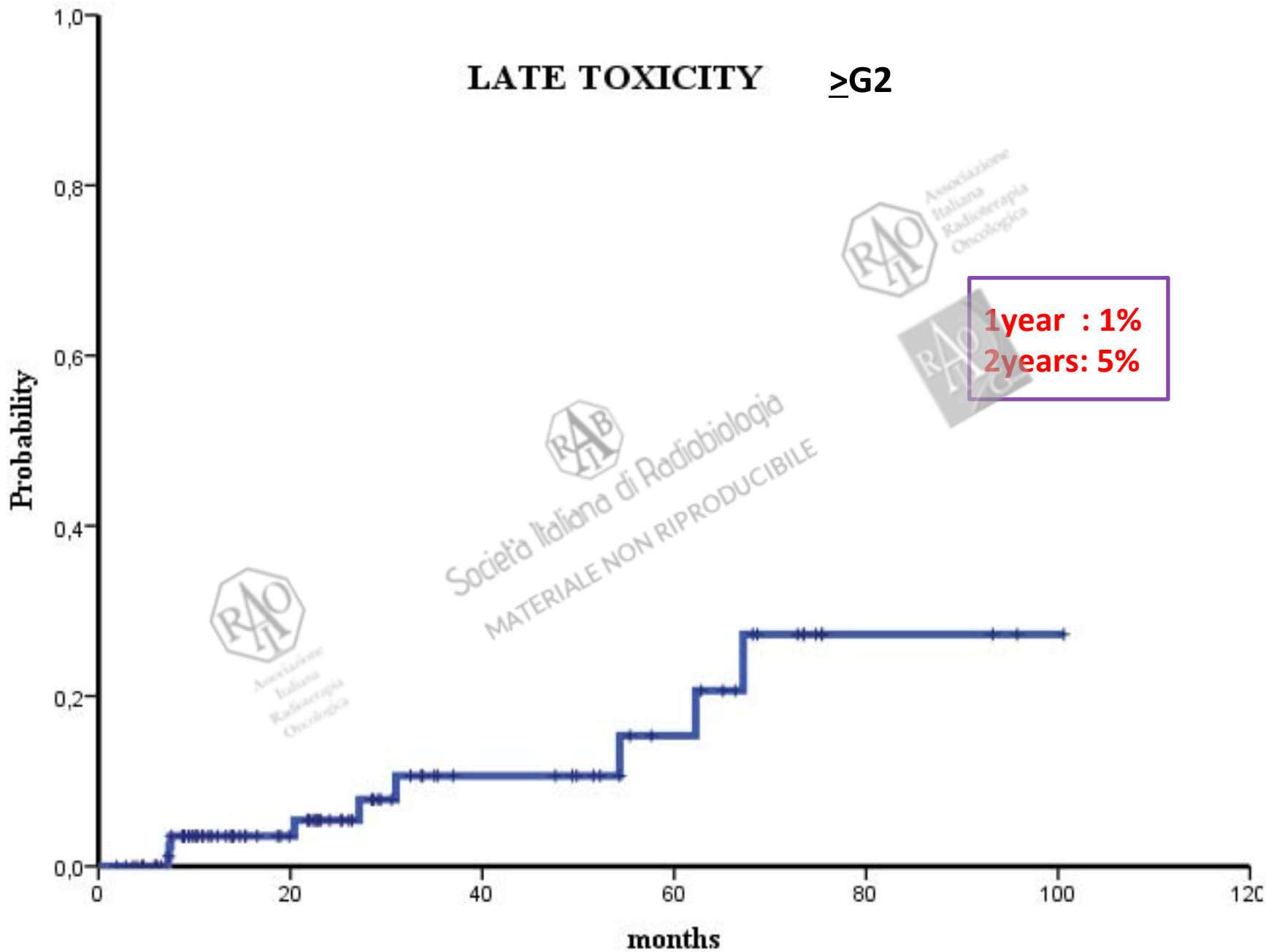
# Local Control (LC)

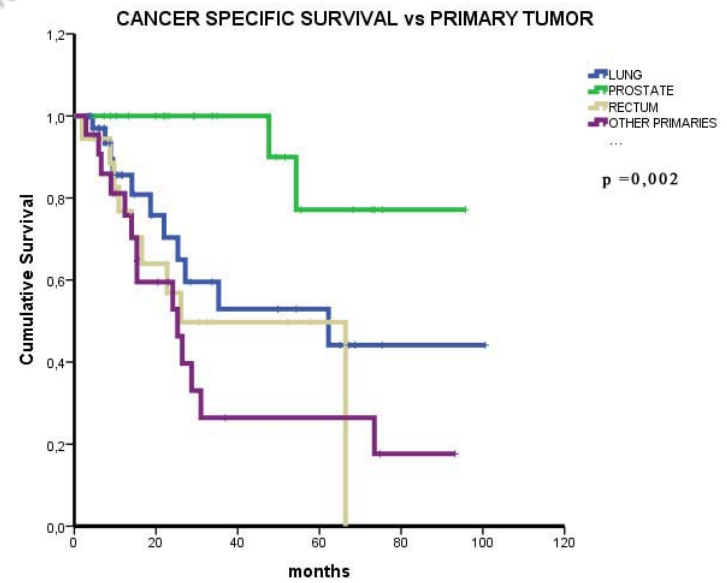
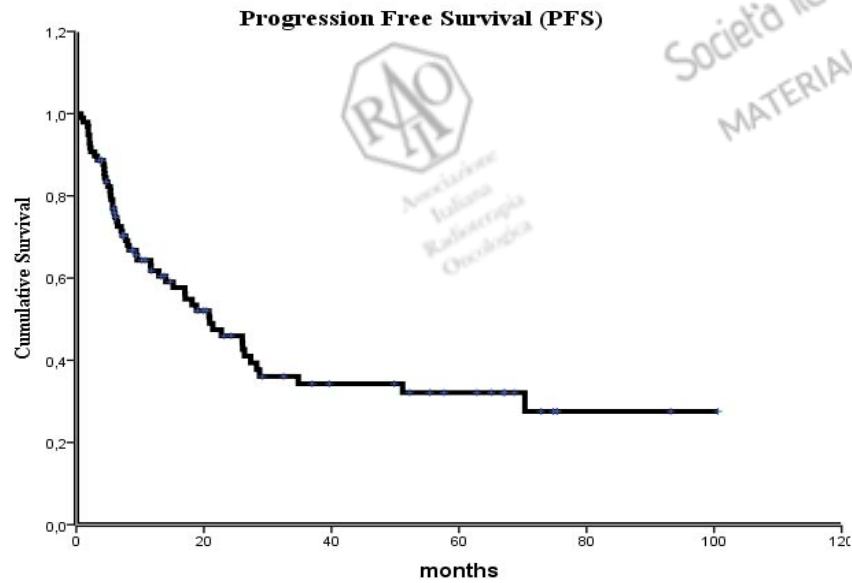
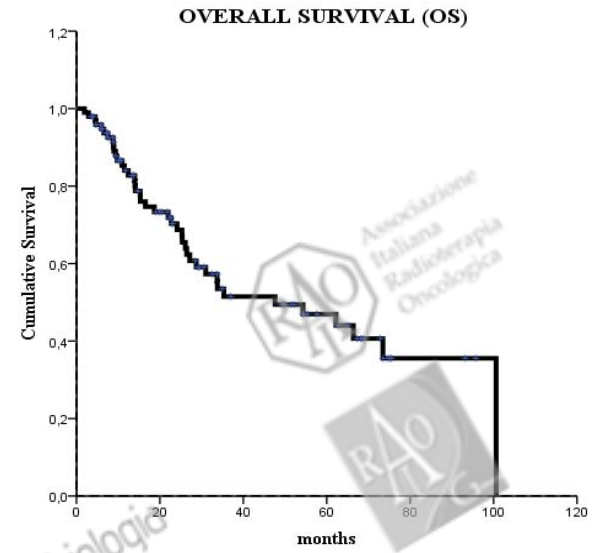
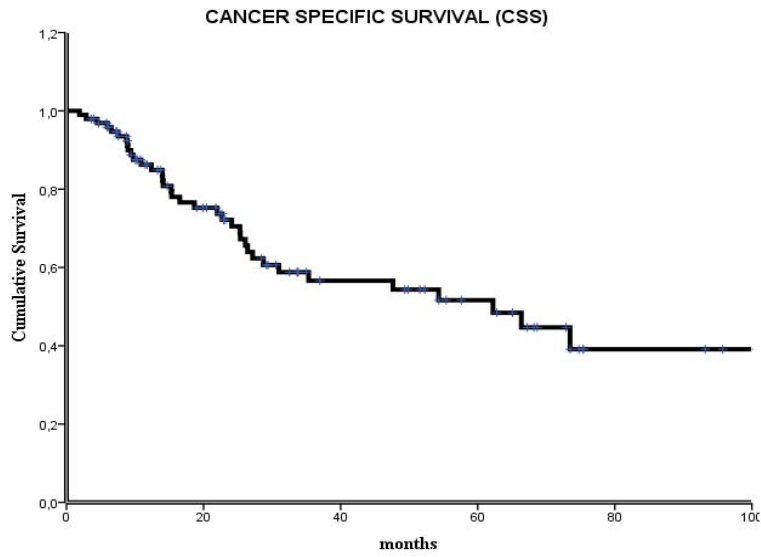


# LOCAL CONTROL vs PRESCRIPTION DOSE


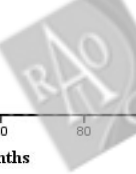


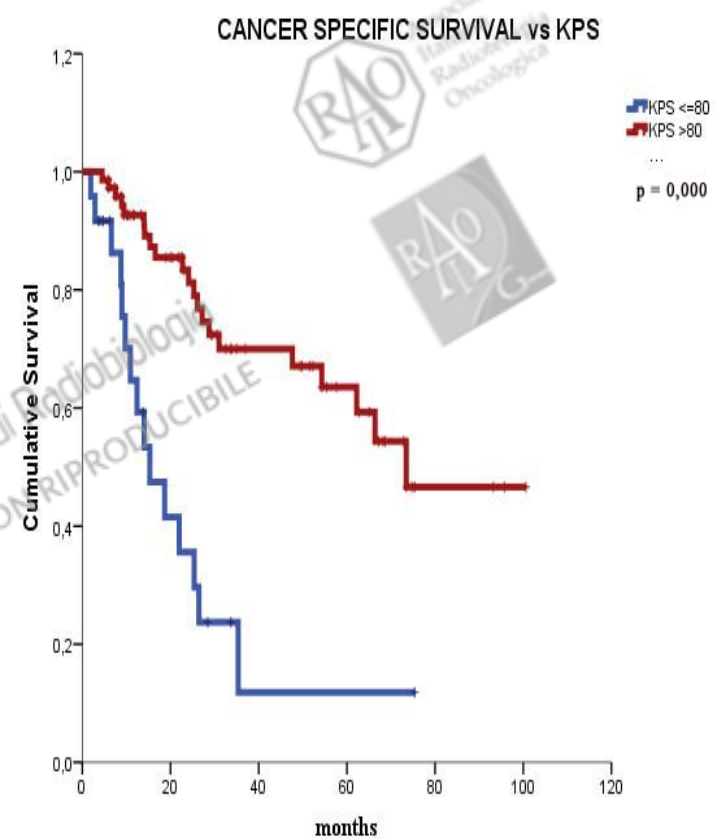
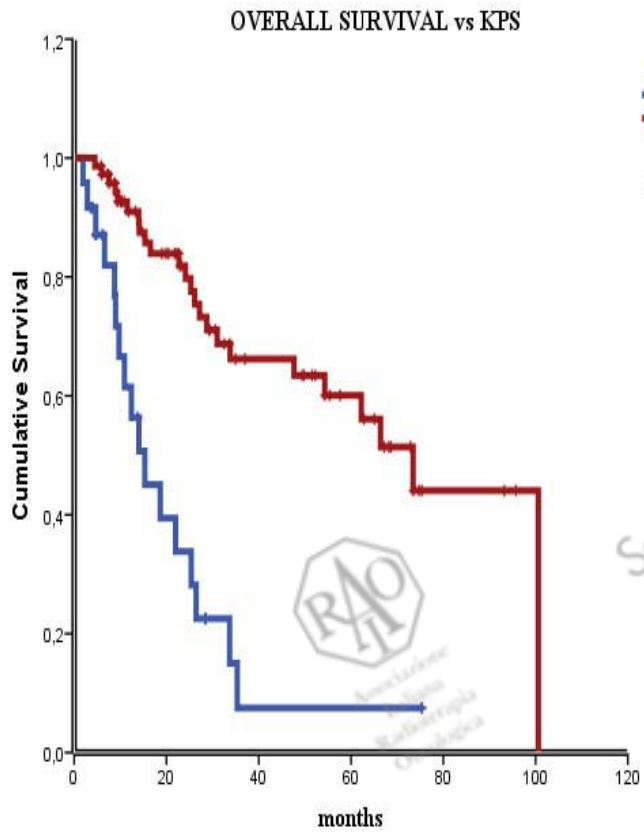
# LATE TOXICITY $\geq G2$





  
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# CONCLUSIONS

- SBRT is a SAFE and EFFECTIVE management option for the control of oligometastatic disease
- The OBJECTIVE of treatment in the (oligo)metastatic setting is to CONTROL the treated metastasis and DELAY PROGRESSION, thereby delaying the need for another treatment
- TOXICITY seems to be MODERATE in most cases

Weather SBRT improves PFS and OS, this can only be proved by RCT



Thank You



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