



Associazione Italiana di Radioterapia Oncologica



Preoperative Intensity-Modulated Radiotherapy with a Simultaneous Integrated Boost combined with Capecitabine in Locally Advanced Rectal Cancer

An analysis of toxicity and tumor down-staging related to different intensification schedules.

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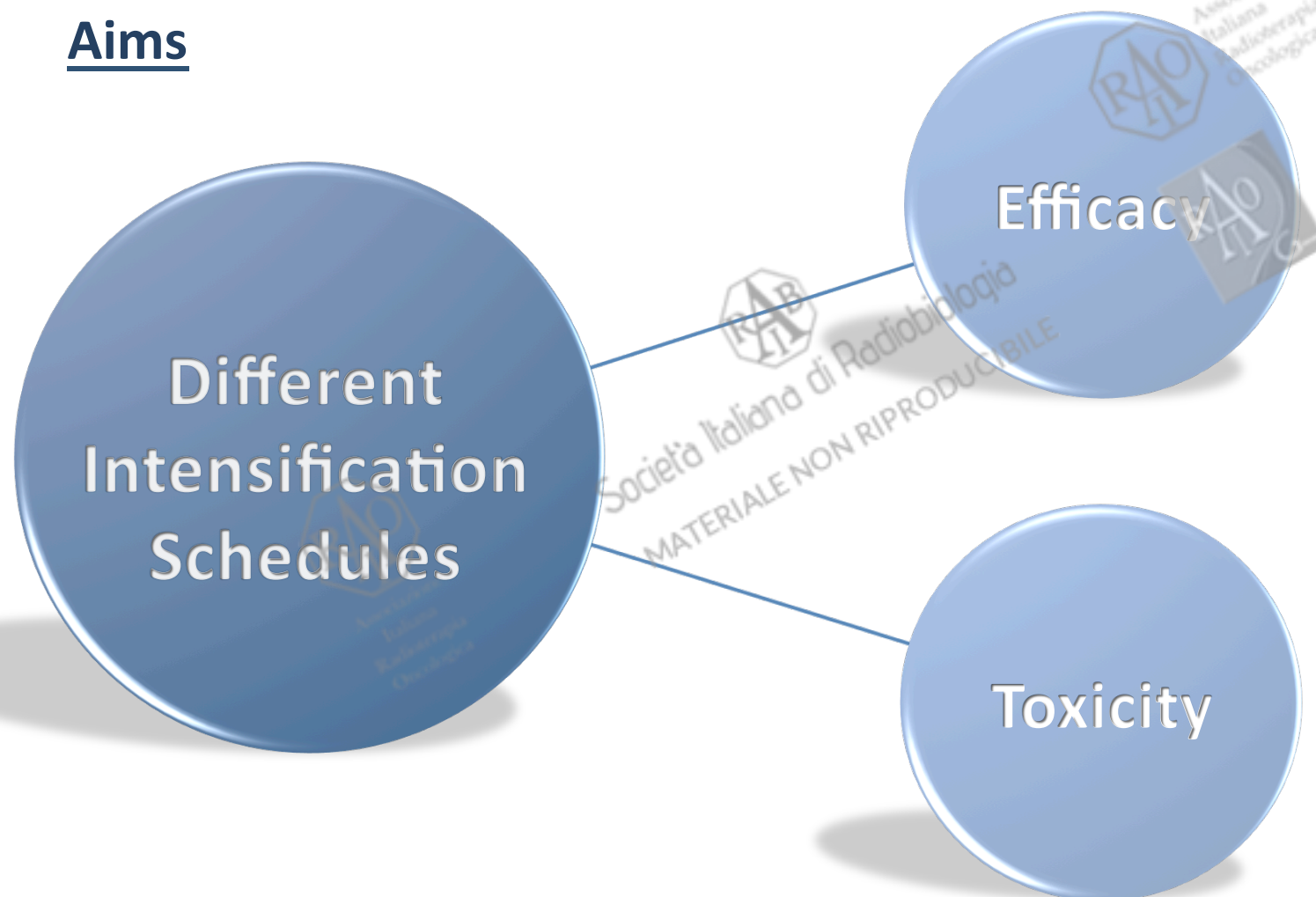
SOC Oncologia Radioterapica

CRO – Centro di Riferimento Oncologico

Aviano

Preoperative IMRT-SIB with Capecitabine in LARC

Aims



Preoperative IMRT-SIB with Capecitabine in LARC

Materials and methods

Inclusion Criteria

- Histological diagnosis of extra-peritoneal rectal cancer;
- Clinical-instrumental staging of locally advanced disease (stage II-III);
- IMRT on mesorectum in toto and pelvic lymphatic drainage with SIB on tumor and the corresponding mesorectum associated with Capecitabine-based concomitant chemotherapy.



Preoperative IMRT-SIB with Capecitabine in LARC



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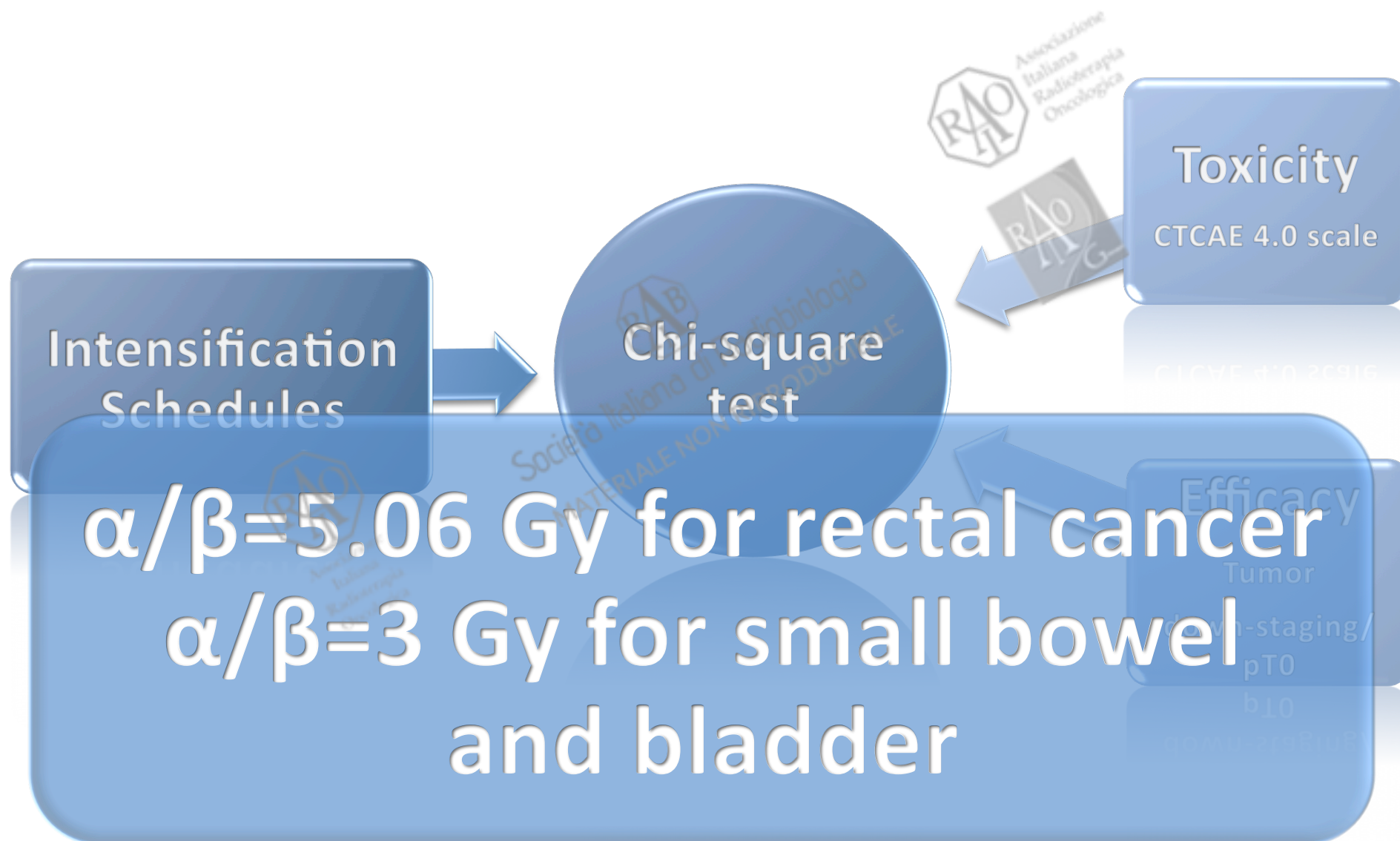
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Preoperative IMRT-SIB with Capecitabine in LARC



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Results

From October 2013 to May 2016 **76 patients** were included in our analysis.

Preoperative IMRT-SIB with Capecitabine in LARC

Patient population and treatment characteristics.

cT, n (%)	
cT2	5 (6.5)
cT3	63 (82.9)
cT4	8 (10.6)
cN, n (%)	
cN0	12 (15.8)
cN1	39 (51.3)
cN2	25 (32.9)
Stage, n (%)	
IIA	12 (15.8)
IIIA	3 (3.9)
IIIB	49 (64.5)
IIIC	12 (15.8)
MRF involvement, n (%)	
Yes	34 (44.7)
No	42 (55.3)
Quarters of involved wall, n (%)	
1	7 (9.2)
2	38 (50)
3	13 (17.1)
4	18 (23.7)

Preoperative IMRT-SIB with Capecitabine in LARC

Capecitabine at the dose of 1650 mg/sqm for the entire duration of the RT.

45Gy/25fr to the primary tumor, mesorectum and obturator, presacral and internal iliac lymph nodes (+ external iliac lymph nodes in cT4).

Treatment

CTV-SIB to the primary tumor and corresponding mesorectum with a c-c extension of 1-2 cm + ev. macroscopic N+.

Preoperative IMRT-SIB with Capecitabine in LARC

<i>SIB doses</i>	N° Pts
52.5 Gy/25fr (<i>sf</i> 2.1 Gy)	16 (21.1%)
54 Gy/25fr (<i>sf</i> 2.16 Gy)	24 (31.6%)
55 Gy/25fr (<i>sf</i> 2.2 Gy)	34 (44.7%)
57.5 Gy/25fr (<i>sf</i> 2.3 Gy)	2 (2.6%)

Preoperative IMRT-SIB with Capecitabine in LARC

$\alpha/\beta=5.06$ Gy for rectal cancer

<i>SIB doses</i>	BED	EQD2
52.5 Gy/25fr (<i>sf</i> 2.1 Gy)	74.28 Gy	53.24 Gy
54 Gy/25fr (<i>sf</i> 2.16 Gy)	77.05 Gy	55.22 Gy
55 Gy/25fr (<i>sf</i> 2.2 Gy)	78.91 Gy	56.55 Gy
57.5 Gy/25fr (<i>sf</i> 2.3 Gy)	83.63 Gy	59.94 Gy

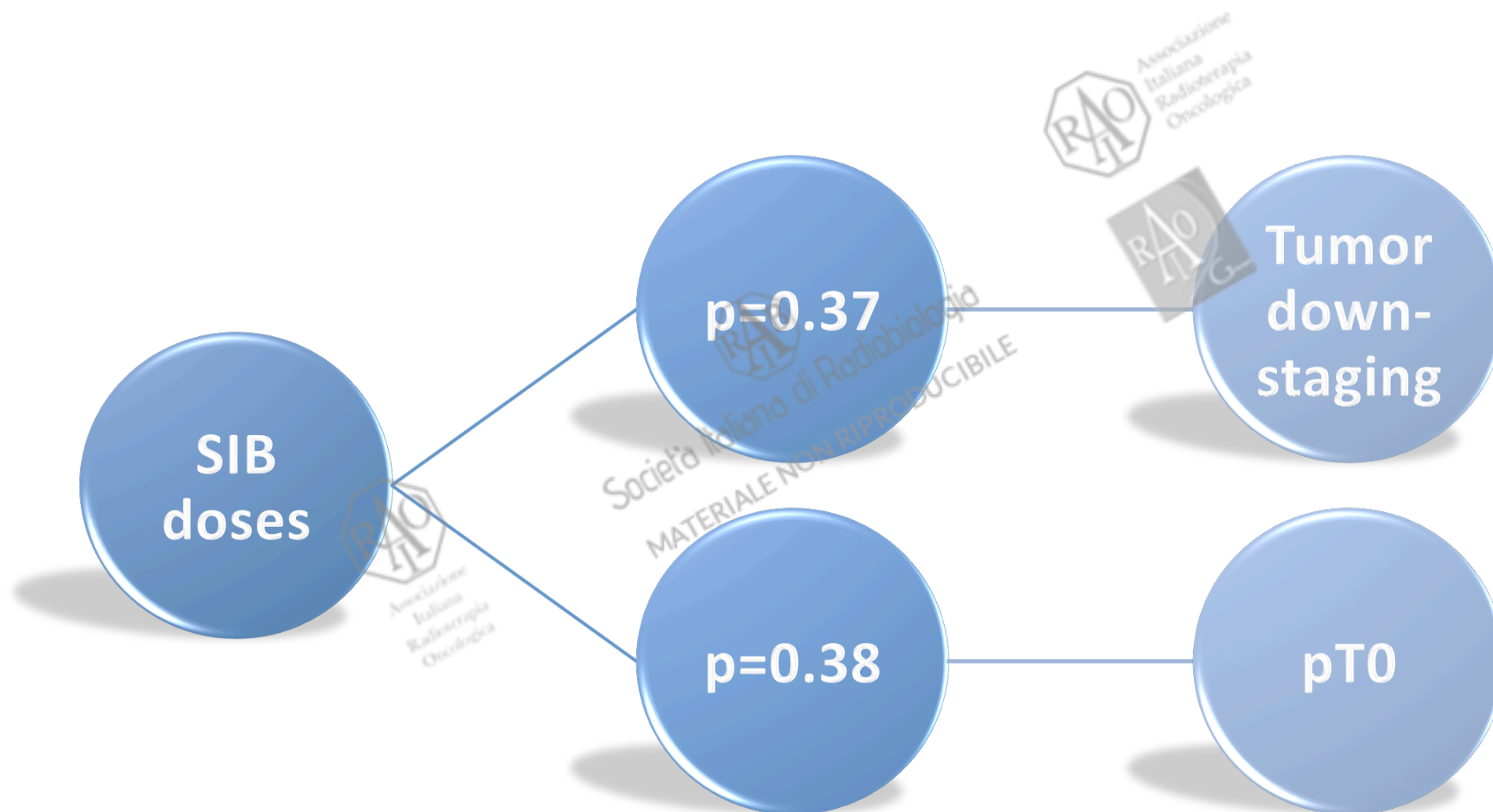
Preoperative IMRT-SIB with Capecitabine in LARC

Response to treatment: T down-staging.

	pT0	pT1	pT2	pT3	pT4	Total, n (%)
cT2	2	0	1	0	0	3 (4.2)
cT3	16	8	18	19	0	61 (84.7)
cT4	1	0	2	4	1	8 (11.1)
Total, n (%)	19 (26.4)	8 (11.1)	21 (29.2)	23 (31.9)	1 (1.4)	72 (100)

T down-staging was documented in 51 (70.8%) pts.

Preoperative IMRT-SIB with Capecitabine in LARC



Preoperative IMRT-SIB with Capecitabine in LARC

$\alpha/\beta=3$ Gy for small bowel and bladder (Dmax)

SIB doses	BED	EQD2
52.5 Gy/25fr (sf 2.1 Gy)	89.25 Gy	53.55 Gy
54 Gy/25fr (sf 2.16 Gy)	92.88 Gy	55.73 Gy

Dose constraints were bladder mean dose ≤ 21 Gy and V15 ≤ 150 cc for single loops SB.

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Acute toxicity.

GI Toxicity, n (%)	
G1	14 (18.4)
G2	15 (19.7)
G3	5 (6.6)
G4	0 (0)
GU Toxicity, n (%)	
G1	18 (23.7)
G2	5 (6.6)
G3	0 (0)
G4	0 (0)

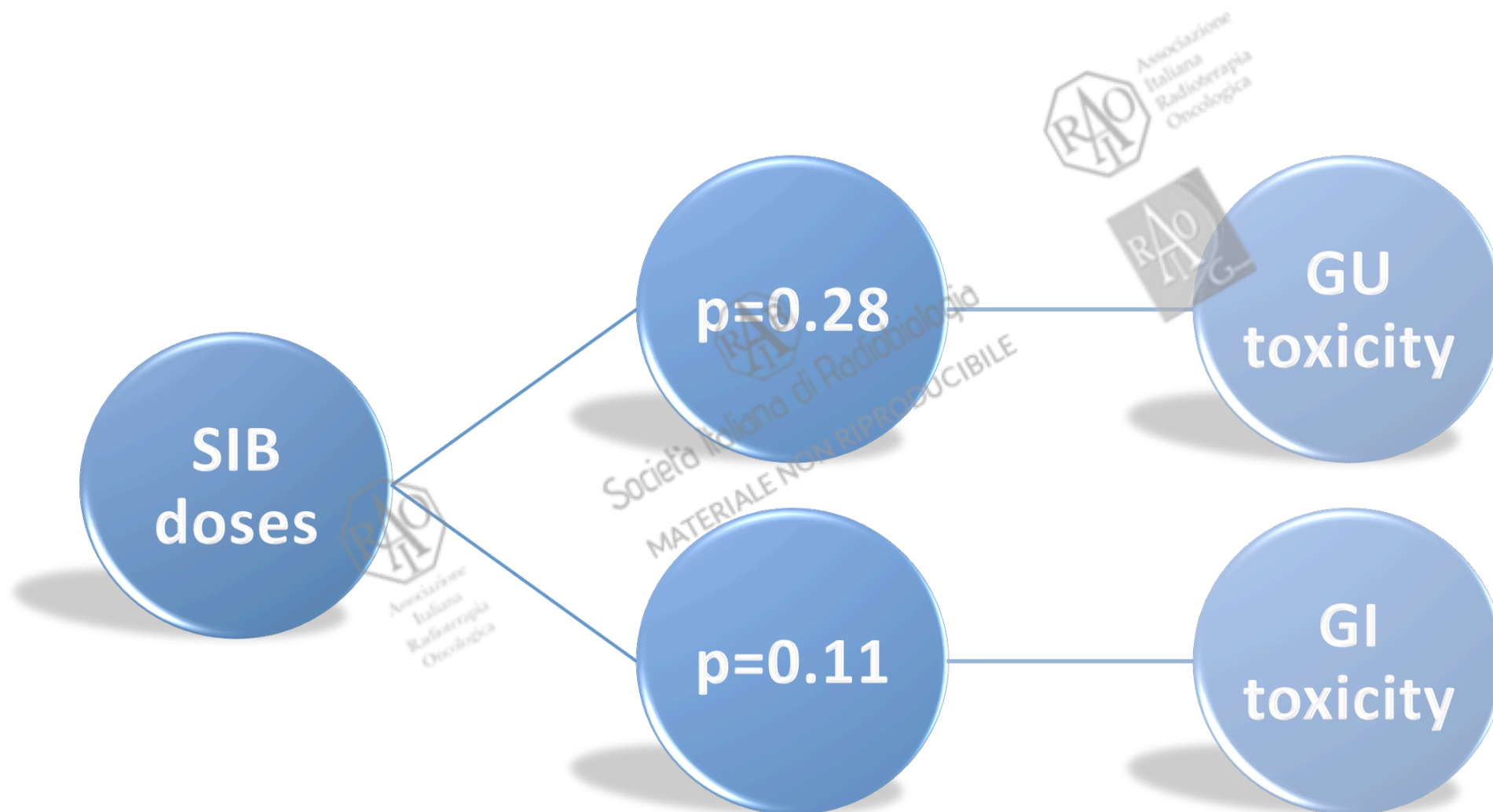
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"Compliance" to treatment.

SIB doses	N° Pts
52.5 Gy/25fr	16/16
54 Gy/25fr	23/24
55 Gy/25fr	33/34
57.5 Gy/25fr	2/2

74/76 pts completed RT (97.4%)

Preoperative IMRT-SIB with Capecitabine in LARC



Preoperative IMRT-SIB with Capecitabine in LARC

Conclusion

Different
Intensification
Schedules

No
difference
in toxicity

- compliance to treatment (97.4%)
- 6.6% of major GI toxicity
- No G3 GU toxicity.

No
difference
in efficacy

- small n° of pts
- unbalanced subsets of pts

Preoperative IMRT-SIB with Capecitabine in LARC

Grazie
dell'attenzione



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