


XXXII CONGRESSO NAZIONALE AIRO  
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# AIRO2022

Radioterapia di precisione per un'oncologia innovativa e sostenibile

BOLOGNA, 25-27 NOVEMBRE  
PALAZZO DEI CONGRESSI

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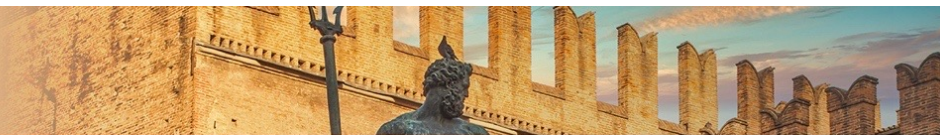
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## HYPOFRACTIONATION WITH SIMULTANEOUS INTEGRATED BOOST FOR EARLY BREAST CANCER PATIENTS: A LITERATURE REVIEW

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## DICHIARAZIONE

Relatore: Marzia Borgia

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)**
- Altro



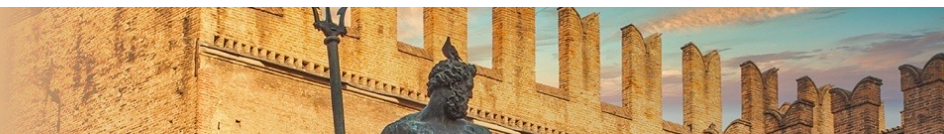


## BACKGROUND

- **Moderate hypofractionation:** standard of care for adjuvant whole-breast radiotherapy (WBRT), **optimizing patient and healthcare system resources.**
- Scientific literature reports mostly the effectiveness and safety of **hypofractionated sequential boost (Hypo-SB).**
- **Simultaneous integrated boost (SIB)** can improve dose distribution and can be administered both in hypofractionation and conventional standard schedules.
- Several studies are investigating the **feasibility of SIB in the hypofractionated regimen (Hypo-SB).**
- We report a literature review evaluating **SIB in hypofractionated schedule** in order to assess the results in terms of **clinical outcomes and early and late side effects**

## METHODS

- A **research on Medline (Pubmed)** was performed using the following words: “*breast cancer radiotherapy*”, “*simultaneous integrated boost*”, “*hypofractionated radiotherapy*”.
- Retrospective studies and review were excluded. **Studies published since 2012 were included.**
- **10 papers met** our criteria in which we collected: **patients, type of study, dose delivered to the breast and to the boost, radiotherapy technique, median follow-up, early and late toxicity, clinical outcomes**



## RESULTS

**Table: Characteristics, treatment schedule, toxicity and clinical outcomes of the analyzed studies**

Study	Type of study	N° of patients	Dose whole breast (dose per fraction)	Dose boost per fraction	Technique	Follow-up	Acute toxicity	Late toxicity	Survival Outcomes
Scorsetti et al. (2012)	Phase I-II trial	50	40.5 Gy (2.7 Gy/fx)	7.5Gy (0.5Gy/fx)	VMAT	12 months (range 8-16)	G1=64%, G3=2%	0	----
Franco et al. (2013)	Prospective phase II trial	82	45 Gy (2.25 Gy/20 fx)	5Gy (0.25Gy/fx)	Tomotherapy	12 months (range 6-18)	G1=53%, G2=2%, G3<1%	G1=24%, G2=4%	LC=100%
Dellas et al. (2014)	Multicenter phase II study	151	40 Gy (2.5 Gy/fx)	7.5Gy (0.5Gy/fx)	3D-CRT or IMRT	----	G2=22%(3D-CRT); 9% (IMRT)	----	----
Kyrgias et al. (2015)	Prospective study	77	46 Gy (2.3 Gy/20 fx)	8 (0.4 Gy/fx)	3D-CRT	24 months	G1=40.7%	G1=29.6%	----
Cante et al. (2015)	Observational study	83	45 Gy (2.25 Gy/20 fx)	5Gy (0.25Gy/fx)	3D-CRT	60 months (range 12-88)	G1=40%, G2=3%	G1=21%, G2=6%	5-year OS=92%, 5-year DFS=100%
De Rose et al. (2016)	Phase I-II trial	144	40.5 Gy (2.7 Gy/fx)	7.5Gy (0.5Gy/fx)	VMAT	37 months (range 24-55)	G1=20%, G2=8%	G1=14%	----
Mondal et al. (2017)	Prospective study	10	40.5 Gy (2.7 Gy/fx)	7.5Gy (0.5Gy/fx)	VMAT	24 months (range 22-26)	G1=80%, G2=20%	----	----
Cante et al. (2017)	Observational study	178	45 Gy (2.25 Gy/20 fx)	5 Gy (0.25Gy/fx)	3D-CRT	117 months (range 4-140)	----	----	10-year OS=92.2%, 10-year DFS=95.5% 10-year LC=97.3%
Krug et al (2020)	Multicenter prospective single-arm phase II trial	143	40 Gy (2.5 Gy/fx)	7.5Gy (0.5Gy/fx)	3D-CRT or IMRT	----	----	G <sub>≥2</sub> =14.7%	----
Franceschini et al (2021)	Phase I-II trial	450	40.5 Gy (2.7 Gy/fx)	7.5Gy (0.5Gy/fx)	VMAT	77 months (range 23-116)	----	G1=22%, G2=4% (6 months) G1=5.3%, G2=1.3% (5 years)	----
Van Hulle et al (2021)	Randomized trial (Prone position)	150	40.05 (2.67 Gy/fx)	6.7Gy (0.45Gy/die) or 9.9Gy (0.66Gy/die)	IMRT	24 months	----	G <sub>≥3</sub> =0	----



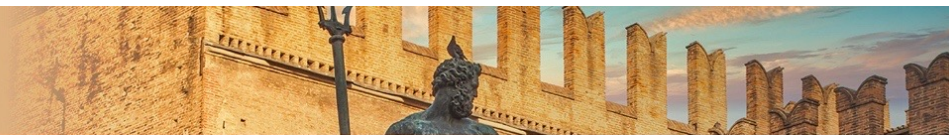
## CONCLUSION

- ✓ **Hypofractionated WBRT with Simultaneous Integrated Boost seems effective and well tolerate.**
- ✓ Other randomized studies compared SB vs SIB but with standard fractionation.
- ✓ However, only one randomized trial compared Hypo-SB vs Hypo-SIB in prone position with no significant differences in clinical outcomes and acute and late side effects.
- ✓ Larger randomized trial are needed to confirm and enhance these results in Hypo-fx schedules for the better Boost prescription in clinical practice.

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# GRAZIE DELL'ATTENZIONE