Ablative Raditherapy (SABR) as primary treatment in inoperable and elderly women with breast cancer.

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Objectives:

Our research team hypothesizes SABR as a safe and effective primary treatment alternative to surgery in patients with inoperable breast carcinoma or who refuse surgery. It has a real impact on primary tumor control with a lower rate of local and distant recurrence..

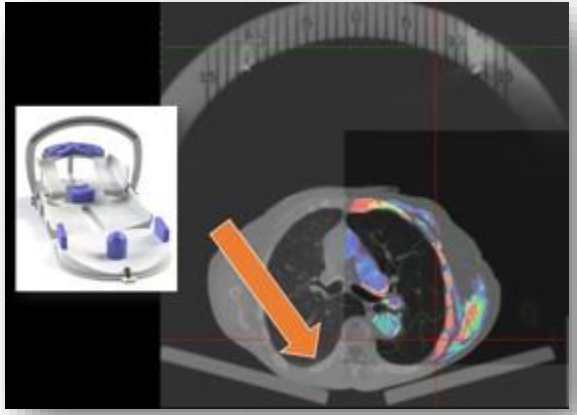

Figure 1. Patients lean on an antirotation truncated V-shaped surface

Materials & methods:

Prospective EC F II, one arm, radical treatment with ablative radiotherapy, single dose of 21 or 24 Gy. In patients older than ≥ 50 years, diagnosed by biopsy, with size T1-2 (≤ 5 cm), inoperable or who failed surgery. The primary objective of the study is to assess the radiological response using the RECIST 1.1 criteria and comparing it with the results of radiology tests performed on the patients PET CT 18 FDG AND MRI with breast contrast, secondary objectives to assess the degree of toxicity and cosmesis.

We used a breast stereotactic prototype with ribs dampening (BSRD), developed and patented in our hospital and coodeveloped with the company AnatGe (figure 1).

At BSRD patients sit perpendicular to the CT couch on a rotating platform that fixes the symphysis and trochants. Legs are raised and the platform rotates until it locks at couch advance direction. Patients lean on an antirotation truncated V-shaped surface that leaves the spinous processes exposed and unsupported, placing their weight on the paraspinal musculature. A Moldcare BR-3 (ALCARE CO., Ltd) fixes the arms, armpits, neck and head (figure 2a). Afterward, a thermoplastic mold with a compression belt is placed from the submammary crease to the end of the costal arch that avoid any ribs movements for an unexpected deep breathing or coughing.

Treatment planning is designed with Pinnacle using the negative margin technique for 4π treatment with 15 beams (figure 2b), which allows a high conformation to target, maintaining the dose in organs at risk below the established limits (figure 2c).

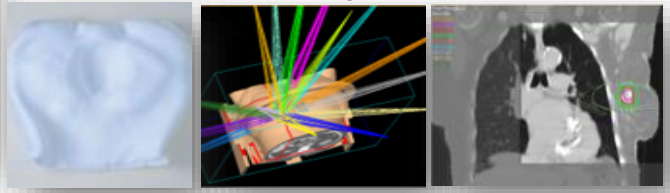

Figure 2. a) BR-3, mask, BSRD, b) 4π treatment with 15 beams, c) Typical dose distribution

Results:

From June 2017 to June 2022, 41 patients were included, with 46 lesions, treatment with SABR was performed in 37, treatment was not performed in 9, mean age 82 years (50-93 years), median follow-up 29.5m (1-60), ECOG 0-1-2: 88%, ECOG 3-4: 12%. most frequent histology CDI SNE 80%, CIntraDuctal 10%, Ca lobular infiltrating 10%; Immunophenotype LUMINAL B 39.1%, LUMINAL A 52%, triple negative 8.4%. Lesion location Left breast 43.5%, right breast 52.2%, Bilateral 2.17%. Staging: Stage I 37%, II 47.8% (IIA 90%; IIB 10%), III 8.7%; IV 6.52%.

Single dose administered 24Gy 76%, 21Gy 18.4%. Regarding the response, 73% of the treated patients are in complete response (27 patients), 10.8 in partial response (4 patients), 10.8% (4 patients) with stable disease and only 5 .4% in progression (2 patients) (figure 3)

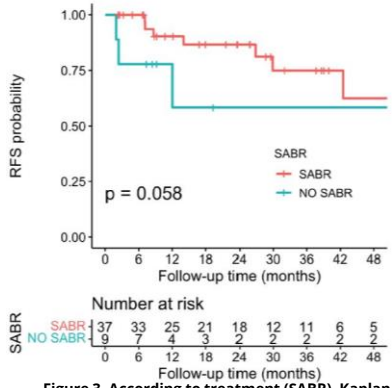

Figure 3. According to treatment (SABR). Kaplan-Meier
The last relapse observed occurred in 64.4 months of follow-up

Conclusions:

SABR treatment of the breast has proven to be a safe, effective treatment, with excellent local control, with minimal acute and chronic toxicity, and excellent cosmesis; that it can be a radical treatment alternative to surgery in patients with breast cancer, new phase II-III studies are needed to corroborate it.

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References

1. Robotic Stereotactic Body Radiation Therapy for the Adjuvant Treatment of Early-Stage BreastCancer: Outcomes of a Large Single-Institution Study. Anna Jaysing, BA et al. VOLUME 8, ISSUE 2, 101095, MARCH 2023, ADVANCES IN RATION ONCOLOGY
2. Stereotactic Radiotherapy in Early-Stage Breast Cancer in Neoadjuvant and Exclusive Settings: A Systematic Review. Piras A., Sanfratello et al. Oncology Research and Treatment 2023 46:3 (116-1233)