

Breast-conserving surgery after neoadjuvant chemotherapy in patients with locally advanced cancer. Preliminary results

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SUMMARY: Breast-conserving surgery after neoadjuvant chemotherapy in patients with locally advanced cancer. Preliminary results.

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Neoadjuvant chemotherapy (NACT) in locally advanced breast tumors may allow an adequate control of the disease impossible with surgery alone. Moreover, NACT increases the chance of breast-conserving surgery. Between 2008 and 2012, we treated with NACT 83 patients with locally advanced breast cancer. We report the preliminary results evaluating the impact of NACT on the type of surgery.

KEY WORDS: Breast - Cancer - Conserving surgery - Neoadjuvant chemotherapy.

Introduction

In locally advanced breast cancers one of the goals of the neoadjuvant chemotherapy (NACT) is to convert “inoperable” tumor into “operable” tumor (1). In these patients NACT may allow an adequate control of the disease impossible with surgery alone (2). Moreover, after NACT the patients may be treated with breast-conserving surgery (3). In the presence of inflammatory or multifocal carcinoma, breast-conserving surgery is not recommended and NACT has the only purpose of increasing the survival of patients (4-10).

Patients and methods

Between 2008 and 2012, we treated a total of 1040 patients with breast cancer. Of these, 83 women were treated with NACT (Table 1). Chemotherapy schemes are anthracycline-based (until 8 cycles in responsive patients).

Results

We evaluated the results of NACT in terms of type of the subsequent surgery, i.e. conserving surgery (quadrantectomy or nipple- and skin-sparing mastectomy) versus radical mastectomy, considering the post-NACT tumor size (evaluated by imaging) as main factor in the surgical decision.

In particular (Table 1):

- in 2008, 2 out of 7 patients treated with NACT underwent to quadrantectomy and 5 patients to radical mastectomy – In the two cases treated with breast-conserving surgery following NACT the lesion was single with initial size of 3cm and a response to chemotherapy by 80% (final size < 1cm). In 3 of the 5 patients treated with radical mastectomy the initial size of the tumor was more than 5cm; in the other two patients with multifocal carcinoma the conserving surgery was not applicable;
- in 2009, 11 patients were treated with NACT: five of those underwent quadrantectomy (inclusion criteria: size reduction of 60 -70% and free margins at frozen section), while the remaining underwent to radical mastectomy;
- in 2010, 8 out of 25 patients treated with NACT underwent to conserving surgery (2 nipple- and skin-sparing mastectomy, with histological assessment of the retroareolar ducts; 6 quadrantectomy);

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TABLE 1 - TYPE OF SURGERY IN PATIENTS TREATED WITH NACT.

	Patients/year, n				
	2008	2009	2010	2011	2012
NACT (out of total)	7 (82)	11 (129)	25 (155)	17 (236)	23 (238)
Qu	2	5	6	6	9
NSSM	0	0	2	0	3
RM	5	6	17	11	11

Legenda - NACT: patients treated with neoadjuvant chemotherapy; Qu: quadrantectomy; NSS: nipple- and skin-sparing mastectomy; RM: radical mastectomy.

- in 2011, 6 out of 17 patients with NACT underwent to quadrantectomy, while the remaining underwent to radical mastectomy;
- in 2012, 9 out of 23 patients treated with NACT underwent conserving surgery (3 nipple- and skin-sparing mastectomy; 9 quadrantectomy).

Between 2008 and 2012, in 16 out of 50 women treated with radical mastectomy the pre-NACT tumor ranged between 2 and 4cm, and in 34 patients was > 4cm. None of the patients with initial tumor size < 2cm was treated with radical mastectomy (Table 2).

Discussion

Neoadjuvant chemotherapy is an important therapeutic approach to increase the chances of conserving surgery (11-13). NACT results in a significant clinical response in 90% of cases and complete in 25% of patients, who are histologically confirmed in 4% of cases (14, 15). If the conserving surgery is not recommended, NACT retains a crucial role for the survival of the patient (16).

Key-points for eligibility to conserving surgery are the size of the tumor (at least less than 5cm after-NACT), single and well-defined lesion, genetics (absence of mutations in the BRCA genes) (16, 17). Contraindications to conserving surgery are multifocal breast carcinoma, microcalcification spread, infiltration of the dermis, lymphatic invasion, familiarity, and lobular carcinoma (19). Patients with inflammatory carcinoma should be treated with alternative chemotherapy regimens and/or preoperative radiotherapy (18).

We preferred demolitive surgery in patients with post-NACT tumor size between 3 and 5cm, multicentric cancer, or BRCA gene mutations (20-21).

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TABLE 2 - TYPE OF SURGERY BY PRE-NEOADJUVANT CHEMOTHERAPY (NACT) STAGE AND SIZE (T) OF THE TUMOR.

Pre-NACT characteristics of the tumor	Years 2008-2012		
	Qu (total 28)	RM (total 50)	NSSM (total 5)
Stage			
IIA	10	2	3
IIB	9	5	2
IIIA	4	14	0
IIIB	0	29	0
T, cm			
0-2	16	0	4
2.1-4	12	16	1
4.1-5	0	34	0

Legenda - Qu: quadrantectomy; RM: radical mastectomy; NSSM: nipple- and skin-sparing mastectomy.

Conclusion

The most clearly established advantage of neoadjuvant chemotherapy is its ability to convert patients initially ineligible for breast conserving surgery into candidate for this treatment (21).

Our preliminary results confirm that the neoadjuvant chemotherapy increases the chances of breast-conserving surgery in patients with locally advanced cancer. We believe that the key of the successful breast-conserving surgery after neoadjuvant chemotherapy are the careful patients selection and coordination among specialists.

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