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Surgical treatment of breast cancer in young women

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Introduction

Surgical treatment is a fundamental aspect in the proper management of breast cancer. It is not only the mainstay of loco-regional treatment, but it also allows disease staging and optimization of adjuvant chemotherapy through histopathological and immunohistochemical analysis of the biopsied tissue.

From a strict oncologic point of view, surgical treatment of breast cancer in young women does not differ greatly from that in older women, but the physical consequences of large breast resections can have a major impact on self image, and can result in significant emotional and psychosocial distress in younger women [1]. Moreover, the fact that the majority of women in this age group are of childbearing age calls for the need to consider distinct aspects of surgical treatment [2, 3].

When choosing between a conservative or a more radical surgical approach, it is also important to bear in mind that breast tumors in younger patients tend to be strongly associated with a family history of breast cancer, and therefore patients have an increased risk for carrying BRCA1 or BRCA2 (BRCA1/2) mutations [4]. In confirmed cases of BRCA1/2 mutations, risk-reducing salpingo-oophorectomy has been demonstrated to be the best strategy [5]. In patients with established disease, radical mastectomy (RM), instead of breast-conserving surgery (BCS), is the most sensible approach [6].

Surgical treatment in localized disease

As in other malignant solid tumors, local surgery consists of the excision of the primary tumor with acceptable resection margins. In the case of breast cancer, and particularly in young women, tumor excision should be accomplished while preserving as much breast tissue as possible in order to achieve a satisfactory cosmetic result.

BCS (lumpectomy or partial mastectomy)

Several issues must be evaluated when deciding between BCS or RM; some of them are inherent to this particular age group, and others are common to all breast cancer patients.

De Bock et al [7] showed that younger age (defined as < 40 years of age versus > 50 years of age) and breast-conserving therapy were risk factors for isolated loco-regional recurrence. More recently, van der Leest et al [8] found that the risk of local recurrence and contralateral breast cancer in women younger than 40 years who underwent BCS decreased by more than 50% in those who had received adjuvant systemic treatment. This finding argues in favor of advising the use of adjuvant chemotherapy in all patients aged 40 years or less who undergo BCS.

The use of early screening programs for breast cancer has allowed the identification of increasingly smaller tumors, and consequently the possibility of performing more conservative surgery. However, because breast tissue in young women is morphologically and structurally different from that in older women [9], and sensitivity and specificity of mammography is substantially less, in consequence diagnosis of breast cancer is sometimes delayed, and at diagnosis, tumors tend to be larger [10].

Pregnancy, which is frequently associated with breast cancer in this group of women, remains a therapeutic challenge. Nevertheless, studies indicate that overall, surgery and chemotherapy can be performed during pregnancy, whereas radiotherapy and endocrine or antibody treatment should be postponed until after delivery [11].

The possibility of carrying out conservative surgery in candidate patients largely depends on tumor size, multicentricity and breast volume. Multicentricity, understood as multiple tumor foci involving different quadrants of the breast, should be considered a contraindication for BCS [12]. If the tumor size is too large, or the breast volume too small to allow surgical resection with acceptable volume and shape-wise esthetic results, then a RM should also be considered.

Before surgery, two important aspects must be discussed with the patient. The first is the possibility of neoadjuvant chemotherapy. Studies have shown that neoadjuvant chemotherapy may lead to complete clinical response in 10-30% and partial responses in 50-60% [13]. Prior to neoadjuvant chemotherapy, tumor marking is essential to identify reduced lesions in good responders [14], as well as breast magnetic resonance imaging before and after neoadjuvant therapy to assess local extent [15]. Secondly, if a conservative approach is feasible, but the almost inevitable asymmetry it will produce is a concern for the patient, symmetrizing surgery of the other breast may be warranted, which can be carried out either during the primary surgery or at a later date.

Plastic surgical techniques in breast cancer surgery (i.e. oncoplastic breast surgery) allow cosmetic preservation of the breast after neoadjuvant chemotherapy and adjuvant radiotherapy. They combine oncologic extirpation of the tumor with immediate reconstruction of breast shape and symmetry through the use of diverse surgical techniques chosen according to the tumor, and size and form of the breast [16].

RM and breast reconstruction

RM refers to a variety of surgical procedures involving complete removal of the breast and some of the axillary lymph nodes [13]. When BCS is not feasible because of the need for multiple breast tissue resections, or for performing a prophylactic contralateral mastectomy due to genetic predisposition to the disease, breast reconstruction should be considered. A number of studies support the benefits of breast reconstruction from a psychological point of view, particularly in younger women [17]. However, some aspects regarding the ideal technique and optimal timing of breast reconstruction are still controversial.

Breast reconstruction can be carried out using the patient's own tissue (autologous breast reconstruction) or with the aid of breast prostheses and expanders (heterologous breast reconstruction). Nonetheless, the need to administer adjuvant

radiotherapy is a major limiting factor for a successful outcome in the case of heterologous reconstructions. Current data indicate that complications develop in more than 40% of patients undergoing post-mastectomy radiotherapy [18]. Although radiotherapy by itself is not an absolute contraindication for breast reconstruction, some authors recommend delaying the breast reconstruction procedure until radiotherapy has been administered, because it improves the chances of obtaining favorable cosmetic results, and avoids difficulties related to the optimal radiation delivery after an immediate reconstruction [18, 19].

Traditionally, RM involved the excision of the nipple-areola complex (NAC). Some authors have declared that nipple-sparing mastectomy should not be advocated in cases of large tumors, positive lymph node disease, small tumor-nipple distance, and clinical suspicion of nipple or areola involvement [20, 21]. More recent studies show broader indications for NAC conservation, the absolute contraindications being extensive tumor involvement of the skin, inflammatory breast cancer and a clinically suspicious nipple [22].

Sentinel node biopsy (SNB)

Axillary surgery is an important part of loco-regional treatment of breast cancer, not only as a therapeutic procedure, but also to evaluate the extent of the disease, since the degree of axillary lymph node involvement is the most significant prognostic factor for patients with early-breast cancer. SNB is increasingly being used as an axillary staging method for patients with early-stage cancer, although its impact on tumor recurrence and patient survival is as yet unknown. Compared to axillary lymph node dissection, SNB produces significantly fewer complications, which include lymphedema, nerve injury, and shoulder dysfunctions [23].

Besides physician experience, another factor affecting the identification rate of sentinel nodes is the patient's age. Studies have shown that an age of 60 years or older results

in significantly lower rate of identification than in women below that age, and that for every increase of 1 year of age, the odds of successful SNB identification decreases by 0.05 [23].

SNB is perfectly feasible in women younger than 40 years. However, issues of safety in pregnant women are still a matter of debate, among other reasons, because of the need to use radioactive markers. Currently the most sensible approach is to openly discuss the benefits and risks with the patient before making any decision [24].

Surgical treatment in systemic disease

Standard treatment of stage IV breast cancer does not usually involve surgical resection of the primary tumor unless it is causing symptoms, such as tumor ulceration or infection. However, during the last decade several retrospective trials have shown that surgical resection of the primary tumor is associated with a reduction in mortality risk of around 40% when performed early after the diagnosis [25].

The presence of systemic metastases immediately confers a worse prognosis. Nevertheless, surgical treatment may be feasible in selected candidates, i.e. young patients with metastasis confined to a single organ (involving one or more resectable, metastatic lesions), good performance status and in whom immunohistochemical markers reveal tumors likely to be sensitive to specific chemotherapeutic agents or targeted therapies [26].

Conclusions

Surgical treatment underpins the management of breast cancer. Although technically similar, in contrast to older women the physical consequences of breast resections can have a major psychosocial and emotional impact on younger women. Also, pregnancy and fertility are a special concern in younger women when deciding the best surgical approach. Surgical treatment can be divided into BCS (lumpectomy) or RM. Factors

affecting the decision between using the two approaches include tumor size, multicentricity, breast volume and genetic predisposition to the disease (i.e. BRCA1/2 mutation carriers). Fortunately, due to major advances in the field of oncoplastic surgery, better and more esthetic results are being increasingly obtained. In the case of advanced breast cancer, recent data indicate that surgical resection of the primary tumor is associated with a significant increase in survival rate when carried out soon after diagnosis, which may bring hope to many women with stage IV disease.

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References

1. Dow KH, Lafferty P (2000) Quality of life, survivorship, and psychosocial adjustment of young women with breast cancer after breast-conserving surgery and radiation therapy. *Oncol Nurs Forum* 27:(10):1555-64
2. Anders CK, Johnson R, Litton J, Phillips M, Bleyer A (2009) Breast cancer before age 40 years. *Semin Oncol* 36:(3):237-49
3. Shannon C, Smith IE (2003) Breast cancer in adolescents and young women. *Eur J Cancer* 39:(18):2632-42
4. Lalloo F, Varley J, Moran A, Ellis D, O'Dair L, Pharoah P, et al. (2006) BRCA1, BRCA2 and TP53 mutations in very early-onset breast cancer with associated risks to relatives. *Eur J Cancer* 42:(8):1143-50
5. Rebbeck TR, Kauff ND, Domchek SM (2009) Meta-analysis of risk reduction estimates associated with risk-reducing salpingo-oophorectomy in BRCA1 or BRCA2 mutation carriers. *J Natl Cancer Inst* 101:(2):80-7
6. Axelrod D, Smith J, Kornreich D, Grinstead E, Singh B, Cangiarella J, et al. (2008) Breast cancer in young women. *J Am Coll Surg* 206:(6):1193-203
7. de Bock GH, Putter H, Bonnema J, van der Hage JA, Bartelink H, van de Velde CJ (2009) The impact of loco-regional recurrences on metastatic progression in early-stage breast cancer: a multistate model. *Breast Cancer Res Treat* 117:(2):401-8
8. van der Leest M, Evers L, van der Sangen MJ, Poortmans PM, van de Poll-Franse LV, Vulto AJ, et al. (2007) The safety of breast-conserving therapy in patients with breast cancer aged \leq 40 years. *Cancer* 109:(10):1957-64
9. Devolli-Disha E, Manxhuka-Kerliu S, Ymeri H, Kutllovci A (2009) Comparative accuracy of mammography and ultrasound in women with breast symptoms according to age and breast density. *Bosn J Basic Med Sci* 9:(2):131-6

10. Bharat A, Aft RL, Gao F, Margenthaler JA (2009) Patient and tumor characteristics associated with increased mortality in young women (< or =40 years) with breast cancer. *J Surg Oncol* 100:(3):248-51
11. Lenhard MS, Bauerfeind I, Untch M (2008) Breast cancer and pregnancy: challenges of chemotherapy. *Crit Rev Oncol Hematol* 67:(3):196-203
12. Arriagada R, Le MG, Rochard F, Contesso G (1996) Conservative treatment versus mastectomy in early breast cancer: patterns of failure with 15 years of follow-up data. Institut Gustave-Roussy Breast Cancer Group. *J Clin Oncol* 14:(5):1558-64
13. Rustogi A, Budrukkar A, Dinshaw K, Jalali R (2005) Management of locally advanced breast cancer: evolution and current practice. *J Cancer Res Ther* 1:(1):21-30
14. Newman LA (2008) Surgical issues and preoperative systemic therapy. *Cancer Treat Res* 141:79-98
15. Mameri CS, Kemp C, Goldman SM, Sobral LA, Ajzen S (2008) Impact of breast MRI on surgical treatment, axillary approach, and systemic therapy for breast cancer. *Breast J* 14:(3):236-44
16. Franceschini G, Magno S, Fabbri C, Chiesa F, Di Leone A, Moschella F, et al. (2008) Conservative and radical oncoplastic approaches in the surgical treatment of breast cancer. *Eur Rev Med Pharmacol Sci* 12:(6):387-96
17. Eldor L, Spiegel A (2009) Breast reconstruction after bilateral prophylactic mastectomy in women at high risk for breast cancer. *Breast J* 15 Suppl 1:S81-9
18. Kronowitz SJ, Robb GL (2009) Radiation therapy and breast reconstruction: a critical review of the literature. *Plast Reconstr Surg* 124:(2):395-408
19. Fernández-Frías AM, Aguilar J, Sánchez JA, Merck B, Piñero A, Calpena R (2009) Immediate reconstruction after mastectomy for breast cancer: which factors affect its course and final outcome? *J Am Coll Surg* 208:(1):126-33

20. Cense HA, Rutgers EJ, Lopes Cardozo M, Van Lanschot JJ (2001) Nipple-sparing mastectomy in breast cancer: a viable option? *Eur J Surg Oncol* 27:(6):521-6
21. Cunnick GH, Mokbel K (2004) Skin-sparing mastectomy. *Am J Surg* 188:(1):78-84
22. Paepke S, Schmid R, Fleckner S, Paepke D, Niemeyer M, Schmalfeldt B, et al. (2009) Subcutaneous mastectomy with conservation of the nipple-areola skin: broadening the indications. *Ann Surg* 250:(2):288-92
23. Lyman GH, Giuliano AE, Somerfield MR, Benson AB, III, Bodurka DC, Burstein HJ, et al. (2005) American Society of Clinical Oncology Guideline Recommendations for Sentinel Lymph Node Biopsy in Early-Stage Breast Cancer. *J Clin Oncol* 23:(30):7703-7720
24. Mondil MM, Cuenca RE, Ollila DW, Stewart JHt, Levine EA (2007) Sentinel lymph node biopsy during pregnancy: initial clinical experience. *Ann Surg Oncol* 14:(1):218-21
25. Ruiterkamp J, Ernst MF, van de Poll-Franse LV, Bosscha K, Tjan-Heijnen VC, Voogd AC (2009) Surgical resection of the primary tumour is associated with improved survival in patients with distant metastatic breast cancer at diagnosis. *Eur J Surg Oncol* 35:(11):1146-51
26. Durán JD, Bellón JM (2007) Papel de la cirugía en las metástasis del cáncer de mama. *Cir Esp* 82:(1):3-10