

Oncoplastic approach in the conservative treatment of breast cancer. Analysis of costs¹

Abordagem oncoplástica no tratamento conservador do câncer mamário. Análise de custos

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ABSTRACT

PURPOSE: To analyze the direct costs of conservative surgical treatment of breast cancer, performed in a university hospital, to the Brazilian National Health Care Public System (SUS), checking the impact of the oncoplastic approach on these costs.

METHODS: One hundred thirty eight breast cancer patients who had undergone conservative treatment with oncoplastic approach (n=36) or not (control group, n=102), in the period from 2005 to 2010, were enrolled. Sociodemographic and clinical data were recorded. The direct costs of the surgical procedure were obtained and analyzed.

RESULTS: Groups did not differ in regard to age (p=0.963), and patients in oncoplastic group had a longer time of hospital stay (p=0.000). The median direct cost for the oncoplastic group was R\$461.00 and for the control group was R\$229.00 (p=0.000).

CONCLUSION: The oncoplastic approach has generated higher direct costs in conservative surgical treatment of breast cancer to SUS.

Key words: Breast Neoplasms. Mastectomy, Segmental. Surgery, Plastic. Surgical Flaps. Health Care Costs.

RESUMO

OBJETIVO: Analisar os custos diretos do tratamento cirúrgico conservador do câncer mamário, realizado pelo Sistema Único de Saúde (SUS) em um hospital universitário, verificando o impacto da abordagem oncoplástica sobre estes custos.

MÉTODOS: Foram incluídas 138 pacientes submetidas ao tratamento conservador do câncer mamário pelo SUS, com abordagem oncoplástica (n=36) ou não (grupo controle, n=102), no período de 2005 a 2010. Foram registrados dados sócio-demográficos e da operação. Os custos diretos do procedimento cirúrgico foram obtidos e analisados.

RESULTADOS: Não houve diferença entre os grupos quanto à idade (p=0.963), e o tempo de internação hospitalar foi maior no grupo oncoplástica (p=0,000). A mediana dos custos diretos do grupo oncoplástica foi de R\$461,00 e do grupo controle foi de R\$229,00 (p=0,000).

CONCLUSÃO: A abordagem oncoplástica gerou custos diretos maiores para o tratamento cirúrgico conservador do câncer mamário pelo SUS.

Descritores: Neoplasias da Mama. Mastectomia Segmentar. Cirurgia Plástica. Retalhos Cirúrgicos. Custos de Cuidados de Saúde.

Introduction

Breast cancer is the most common cancer in women, and one of the most frequent causes of death by cancer among women¹. Since its oncological safety has been demonstrated, the breast-conserving treatment, which consists of partial breast resection associated to radiotherapy, is widely considered the standard approach to breast carcinomas of limited diameter².

Although breast-conserving treatment is considered to be the least disfiguring surgical option for breast cancer patients, aesthetic outcomes vary widely, and the majority of women report breast asymmetry after breast-conserving treatment. Patients who undergo breast-conserving therapy frequently develop breast asymmetry from either the surgical removal of tissue or radiation-related fibrosis, or both^{3,4}.

Various techniques of partial breast reconstruction can be used to achieve an aesthetically acceptable result. Immediate reconstruction should be undertaken whenever possible, since effects of radiation on breast tissue may be a problem when reconstruction is delayed⁵.

In order to improve the aesthetic results of breast-conserving treatment, plastic surgery techniques can be performed immediately after appropriate oncologic resection; this approach is known as oncoplastic surgery⁶. The oncoplastic surgery is a multispecialty collaboration, which includes the mastologist, the plastic surgeon, the oncologist and, most importantly, the patient⁵. It is important to identify patients at risk for poor aesthetic results after breast-conserving therapy at the time of pre-operative consultation because oncoplastic techniques may offer these patients improved long-term quality of life^{4,7}.

Health care is a problem faced by several countries, including Brazil. Currently, it has grown the need for studies to assess the economic impact of health actions. Breast cancer therapy is highly cost-effective, but when financial resources are limited, policy-makers must make difficult choices. As governments and health care funders confront the issues of ensuring value for money within limited health care budgets, relative costs and outcomes are important considerations in the development of treatment policy^{8,9}.

We find none study on cost-effectiveness of immediate breast reconstruction following breast-conserving treatment in current literature. Thus, this study was designed to analyze the direct costs of breast cancer conserving treatment, performed in a university affiliated hospital, to the Brazilian National Health Care Public System (SUS), assessing the impact of oncoplastic approach on these costs.

Methods

The study protocol was approved by the Institutional Ethical Committee, and followed the statements of Helsinki Declaration and 196/96 Resolution of the Brazilian National Council of Health.

The study was carried out in a university-affiliated hospital, during the period from 2005 to 2010. All breast cancer patients who had undergone breast-conserving treatment in the period, by the Brazilian National Health Care Public System (SUS), were considered eligible. One hundred thirty eight patients were enrolled; 36 of them underwent oncoplastic surgery and 102, which had none breast reconstruction procedure, were allocated in control group. Patients who received preoperative chemotherapy, with diagnosis of systemic disease or with previous breast surgery were excluded from the study.

Each patient was studied individually, and demographic and clinical data were recorded. For the analysis of costs, we considered the period of hospitalization of the patient. The direct costs of the operation and the postoperative hospital stay, including dressings, materials and human costs were assessed by analysis of records of hospital costs.

Statistical analysis

Due to the nature of the variables studied, non-parametric statistics were used. Mann-Whitney test for independent groups was used to compare the groups in regard to age, time of hospital stay and costs.

The rejection level for the null hypothesis was fixed at 5% ($\alpha=0.05$). Statistical analysis was undertaken using SPSS version 18 (SPSS, Inc., Chicago, USA).

Results

Table 1 presents the comparison between the two groups in regard to the main variables. Patients in both groups did not differ in regard to age ($p=0.963$). Patients who undergone oncoplastic surgery had a longer hospital stay ($p=0.000$).

The median direct cost for control group was R\$229.00, and for oncoplastic group, R\$461.00 ($p=0.000$).

TABLE 1 - Comparison of control and oncoplastic groups in regard to age, time of hospital stay and direct costs.

	Control group (n=102)	Oncoplastic group (n=36)	Mann-Whitney test
Age (years)			
Range	20 - 88	34 - 75	
Median	50.5	49.5	p = 0.963
Mean ± SD	50.3 ± 13.2	50.3 ± 8.2	
Time of hospital stay (days)			
Range	1 - 5	2 - 4	
Median	2.0	2.5	p = 0.000
Mean ± SD	2.1 ± 0.5	2.6 ± 0.6	
Costs (R\$)			
Range	142.85 - 1024.41	304.94 - 603.46	
Median	229.00	461.00	p = 0.000
Mean ± SD	232.40 ± 99.3	453.50 ± 76.9	

SD = standard deviation

Discussion

Since long-term results of randomized trials have proven the oncological safety of breast-conserving treatment, increasing numbers of breast cancer patients have considered this kind of treatment^{2,10}. This increase in the use of breast-conserving treatment led to a rising interest in long-term aesthetic results and patients' quality of life⁷.

Although breast-conserving treatment is considered to be the least disfiguring surgical option for breast cancer patients, the majority of women report breast asymmetry after this kind of treatment^{3,4}. Breast asymmetry may be a constant reminder to these patients of their disease and treatment process, impairing their psychological adjustment after treatment⁴. Despite of this, breast reconstruction following breast-conserving treatment is not routinely offered to patients³.

Recent healthcare policy has focused increasingly on developing appropriate measures of quality for breast cancer care⁴. Reconstructive surgery after mastectomy is likely to be cost-

effective in women who place a value upon it, but this relation has not been established for breast-conserving surgery yet¹¹. Despite previous studies have demonstrated that breast-conserving treatment is more expensive than mastectomy, we find none study of costs of breast reconstruction following breast-conserving surgery^{9,12-14}.

However, a previous study had shown that the possibility of patient choice among breast cancer surgical treatments provided a quality of life gain, thus, it was economically attractive when the economic analysis included the benefit of patient choice of treatment¹². We speculate that this principle could be applicable to oncoplastic surgery. However, further studies of cost-effectiveness of oncoplastic surgery are necessary to test this hypothesis.

The breast plays an important role in female sexuality, and the psychosocial impact of mutilation, even partial, result of the surgical treatment of breast cancer, is immeasurable. This psychosocial impact may result, by itself, in additional costs to the public health system. The present study demonstrated that the oncoplastic approach generated higher direct costs to the Brazilian

National Health Care Public System (SUS). However, the effectiveness of the oncoplastic surgery, demonstrated by better aesthetic results, patients' satisfaction and quality of life gains should be considered^{7,15}.

Conclusion

The oncoplastic approach in the breast-conserving treatment of breast cancer, performed in a university-affiliated hospital, generated higher costs to the Brazilian National Health Care Public System (SUS).

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Received: December 20, 2011

Review: February 21, 2012

Accepted: March 22, 2012

Conflict of interest: none

Financial source: none

¹Research performed at School of Medical Sciences, Vale do Sapucaí University (UNIVÁS), Pouso Alegre-MG, Brazil.