Evaluation of Axillary Treatment in Patients with Early Breast Cancer According to Study Z0011 in a Public Tertiary Hospital in the Federal District, Brazil

T. K. Vivan[1] MD, M. Passos MD[2], V. X. Santana[2] MD, F. C. Salum[2] MD, C. Fuschino[2] MD, A. F. Esterl[2]MD, R. Pepe[1] MD

1Rede Americas, Brasilia, BRAZIL, 2Hospital de Base Distrito Federal HbDF, Brasilia, BRAZIL.

Abstract

Over more than 120 years, medical knowledge about breast cancer has expanded, better survival rates, especially following studies on tumor biology. Axillary surgical treatment has been a significant milestone, changing medical management and reducing the rates of axillary lymph node dissection after the publication of the American College of Surgeons Oncology Group Z0011 clinical trial.

Method: This is an observational, descriptive, retrospective study based on data collected from the medical records of patients who underwent surgical treatment at a public hospital, Hospital de Base, in the Federal District, Brazil.

Results: A total 110 patients included in the study. The average age of patients was 58 years (ranging from 35 to 83 years). The predominant immunohistochemical profile was luminal B (55%), followed by luminal A (30%), HER2 positive (9%), and triple-negative (6%). Among the HER2 positive patients, 80% also had positive hormone receptors (HR), while 20% were HR negative. Among the 110 patients, 27% had sentinel lymph node (SLN) metastasis. Specifically, 19% had metastasis in 1 SLN, 3% had metastasis in 2 SLNs, and 5% had metastasis in 3 or more SLNs. Consequently, 83% of patients with 1 or 2 metastatic SLNs did not undergo lymphadenectomy.

Conclusion :The successful replication of the Z0011 protocol in our study demonstrates the significant potential for reducing axillary lymphadenectomy in patients treated at our hospital, with an observed 83% reduction in axillary dissection among patients with axillary lymph node metastasis. These findings are particularly important as they underscore the feasibility of implementing the Z0011 protocol in a public hospital setting, providing evidence that even in resource-constrained environments, it is possible to achieve substantial improvements in patient care.

Introduction

Axillary dissection has been part of breast cancer treatment since 1894, when Halsted described a radical mastectomy technique, was based on the concept that more extensive surgical resection increased the likelihood of patient cure. The medical knowledge about breast cancer has expanded, enabling less mutilating treatments with equal or better survival rates, especially following studies on tumor biology.

Methods and Materials

This is an observational, descriptive, retrospective study based on data collected from the medical records of patients who underwent surgical treatment at a public hospital, Hospital de Base, in the Federal District, Brazil.

Results

A total of 119 patients from the mastology service at Hospital de Base met the Z0011 eligibility criteria. Nine patients were excluded due to failure in patent blue migration, resulting in 110 patients included in the study. The average age of patients was 58 years (ranging from 35 to 83 years). The predominant immunohistochemical profile was luminal B (55%), followed by luminal A (30%), HER2 positive (9%), and triple-negative (6%). Among the HER2 positive patients, 80% also had positive hormone receptors (HR), while 20% were HR negative. Among the 110 patients, 27% had sentinel lymph node (SLN) metastasis. Specifically, 19% had metastasis in 1 SLN, 3% had metastasis in 2 SLNs, and 5% had metastasis in 3 or more SLNs. Consequently, 83% of patients with 1 or 2 metastatic SLNs did not undergo lymphadenectomy, representing a significant omission of axillary surgical treatment.

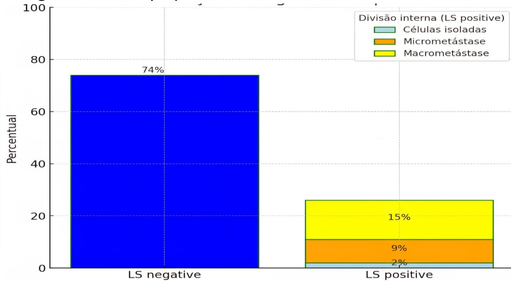
Discussion

Today diagnoses of early-stage becoming increasingly common trials for omitting axillary surgery its started, in order to identify the profile of patients who would not be harmed by omitting axillary lymphadenectomy, axillary management has changed drastically with the rapid adoption of the axillary sentinel lymph node after studies such as IBCSG-2301, Almanac, Veronessi, Snac, Sentinella, among others, with lower morbidity and false negative rates of 9.8%.

Table 1. Comparison of HBDF patients vs. Z0011 LS arm..

.	HbDF	LS Z0011
Age	59 years	54 years
Tumor Size		
cT1	62 (56%)	303 (69.5%)
cT2	48 (44%)	126 (28.9%)
Median	30 mm	
Hormone Receptor Status		
HR positive	94 (85.4%)	270 (61.9%)
HR negative	6 (5.4%)	44 (14.7%)
HER2 positive	10 (9%)	
Histologic Grade		
1	19 (17%)	81 (18.6%)
2	75 (68%)	148 (33.9%)
3	16 (15%)	87 (27.5%)
Histologic Type		
Ductal	80.5%	356 (81.7%)
Lobular	5.9%	36 (8.3%)
Others	13.6%	22 (5%)
Lymph Node Metastasis		
Present	29 (27%)	100%
Absent	81 (73%)	0
Lymph Node Involvement		
Micrometastasis ≤ 2 mm	12 (41%)	44.8%
Macrometastasis > 2 mm	17 (59%)	55.2%

Figure 1 HBDF Lymph Node Involvement Profile.



The prospective study by the ACOSOG Z0011 randomized patients with T1-T2 tumors, clinically negative axilla, conservative surgery with up to two lymph nodes with metastases, followed by adjuvant systemic therapy and radiotherapy, with presents balanced arms when observing population characteristics such as tumor size, hormone receptor status, degree of differentiation, histological type, and extent of lymph node involvement (micro or macrometastases).

Comparing the population assisted by HBDF with the LS arm of the Z0011 study, 56% of HBDF patients were clinically staged as T1 and 85% had positive HR, while 69.9% of LS Z001 were staged as T1 and 61.9% had positive HR. The final histological grade was more balanced in Z0011 patients, while 68% of HBDF patients presented grade two. Radiotherapy, regardless of the technique used, was performed on 89.6% of patients in the LS arm of Z0011, and in our sample, 91% underwent it. Systemic adjuvant therapy was proportionally present in 97% (423) and 96% (403) of women in the LS Z0011 group; in our study, hormone therapy was prevalent in 87%, and chemotherapy in 39% of the sample.

The publication with extended follow-up of Z0011 showed 10-year overall survival in the SLND group alone was 86.3% (95% CI, 82.2%-89.5%) and 83.6% (95% CI, 79.1%-87.1%) in the ALND group, with no significant effect. The 10-year disease-free survival rate was 80.2% (95% CI, 75.6%-84.1%) for the SLND-alone group and 78.2% (95% CI, 73.5%-82.2%) for the axillary dissection group.

Currently, with the proposal of total omission of the axillary approach in the treatment of breast cancer, studies such as SOUND and INSEMA are being conducted in patients with an initial diagnosis of breast cancer, but we need robust and reliable non-inferiority data for changes in clinical practice.

Conclusions

The successful replication of the Z0011 protocol in our study demonstrates the significant potential for reducing axillary lymphadenectomy in patients treated at our hospital, with an observed 83% reduction in axillary dissection among patients with axillary lymph node metastasis. The population has similar clinical characteristics, as they are mostly composed of hormone receptor-positive individuals and are postmenopausal. These findings are particularly important as they underscore the feasibility of implementing the Z0011 protocol in a public hospital setting, providing evidence that even in resource-constrained environments, it is possible to achieve substantial improvements in patient care.

However, we need to create strategies to expand early diagnosis of breast cancer and protocols to ensure that adjuvant treatment is more consistent with what is found in the medical literature.

Contact

Thais Karla Vivan
Rede Americas
Email: thais.vivan@hotmail.com
Phone:+5561998030015

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