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THE EFFECT OF LYMPH NODE ON RECURRENCE AND SURVIVAL POST BREAST CONSERVING THERAPY FOR EARLY BREAST CANCER.

Medicine

Mohammad Al-Daqaf Faculty of Medicine and Health Science "Taiz University" , Taiz, Yemen.

ABSTRACT

Introduction: Breast cancer is the most commonly diagnosed malignancy amongst women. Twenty five years of research examining factors associated with local recurrence in breast conserving surgery has provided much illumination. We know for instance that women of young age, high tumor grade, lymphovascular invasion etc. Are at increased risk of local recurrence**.**

SCOPE : To establish the effect of lymph node post lumpectomy for early breast cancer (stage I and II)

Material and Methods: The study included 100 female patients admitted to the Amail Oncology center , Yemen, with the diagnosis of early breast carcinoma (stage I, II) post breast conserving surgery between January 2013 and February 2016.

Result: From the 100 female patients of the study group.

25 (25%) of female patients were ≤ 40 year-old, while 75 (75%) were > 40 year-old.

A total of 100 patients underwent BCS. Forty-four patients (44%) had NO tumor , twenty three patients (23%) had N1, thirty three patients (33%) had N2.

CONCLUSIONS: In our study, lymph node status was correlated with tumor recurrence and Local Recurrence Free Survival , but not to Overall Survival.

KEYWORDS

Breast cancer, Conserving surgery, Recurrence, Lymph node.

Introduction

Breast cancer is the most commonly diagnosed malignancy amongst women. However breast cancer mortality worldwide is 25% greater than that of lung cancer in women and caused 502,000 deaths worldwide (7% of cancer deaths; almost 1% of all deaths) (1). Attention has been focused on early ways of diagnosis of breast cancer as early management of the tumors markedly affects outcomes.

(2). Options for surgical management of the primary breast tumor include breast-conserving surgery plus radiation therapy, modified radical mastectomy, and mastectomy plus reconstruction.(3). Axillary dissection was a ordinary technique for controlling the axillary nodes. A level I and II axillary dissection will provide precise staging information and conserve local control in the axilla (4).

Twenty five years of research examining factors associated with local recurrence in Breast Conservative Therapy has provided much illumination. We know for instance that women of young age, high tumor grade, lymphovascular invasion etc. Are at increased risk of local recurrence (5).

Many techniques have been evolved in an attempt to detect of residual disease or local recurrence after conserving breast surgery. Such as post-excision mammography, MRI (Magnetic resonance imaging) and histopathological margin assessment (6).

Axillary nodal involvements does not appear to be associated with an increased risk of local recurrence neither after breast conservative therapy nor after modified radical mastectomy which may be the result of the adjuvant systemic treatment administrated to the majority of node positive patients. (7).

Material and methods

During January 2013 and February 2016. Amail Oncology Center, Yemen. Throughout the period we conduct the study 100 female patients with early stage breast cancer (I ,II) post breast conservative surgery who were eligible for inclusion in the study.

Each patient's underwent the so-called triple assessment for breast cancer:

- Medical history and complete clinical examination (general and local).
- Bilateral mammogram and complementary US.
- Hitopathological biopsy.

Any patients proved to have metastatic breast cancer exclude from the study.

Lymph node =N0 = no lymph nodes- N1= 1-3 lymph node. N3= 4-10 lymph nodes.

Grade of tumor= G1 = well differentiation – G2= moderate differentiation – G3= poor differentiation local recurrence free survival (LRFS) calculated from date of diagnosis to the date of tumor recurrence. Overall survival (OAS) calculated from the date of diagnosis to the date of either death or lost follow-up.

Data were analyzed by using a computer SPSS program, version 22. Described in percentage, Chi square test used for statistical analysis. Survival analysis was done using survival tables and Comparison was done between the different groups by Log rank.

Result

From the 100 female patients of the study group.

The mean age at the time of diagnosis was 42 years (26–78 years).

25 (25%) of female patients were ≤ 40 year-old, while 75 (75%) were > 40 year-old.

Table (1) Character of primary tumor.

	Number = 100	Percentage %
Lymph node	44	44%
No	23	23%
N1	33	33%
N2		

A total of 100 patients underwent Breast conservative surgery for stage I-II.

Forty-four patients (44%) had NO tumor , twenty three patients (23%) had N1, thirty three patients (33%) had N2.

Table (2) Chi-Square Tests (df- degree of freedom) for progress of the tumor.

	Variable	df	P value
Recurrence	Lymph Node	2	0.000

The above table showed that, By chi-square test for independence between the tumor recurrence and the two variables, lymph node and histological grade were significantly associated with tumor recurrence with P value (0.000 -0.001 respectively).

Table (3): Comparison of local recurrent free survival(LRFS) in breast cancer patients according to lymph node groups.

	N=0		N1=1-3		N2=4-10		p value
	Estimate %	SE	Estimate %	SE	Estimate %	SE	
First Year	100	-	0.864	0.073	0.771	0.076	**0.000**
Second Year	100	-	0.864	0.073	0.622	0.091	
Third Year	100	-	0.864	0.073	0.622	0.091	

The three years local disease free survival in node-ve patients is 100% , 86.4% in N1 +ve nodes and 62.2% in N2 +ve nodes. Which was significant, P value = 0.000 .

Table (4): Comparison of OAS in breast cancer patients according to lymph node groups.

	N=0		N1=1-3		N2=4-10		P value
	Estimate %	SE	Estimate %	SE	Estimate %	SE	
First Year	100	-	0.955	0.044	0.968	0.032	**0.344**
Second Year	100	-	0.955	0.044	0.934	0.045	
Third Year	100	-	0.955	0.044	0.934	0.045	

The three years overall survival rate in node-ve patients is 100% , 95.5% in N1 +ve nodes and 93.4% in N2 +ve nodes.

DISCUSSION

Although the risk of local recurrence after mastectomy has generally been considered to be lower than after breast conserving surgery, most of the randomized comparative have not demonstrated any significant difference in this respect **(8).**

In order to treat both the current malignancy and to decrease the occurrence of new primary cancers in the ipsilateral breast post conservative surgery whole breast irradiation is the standard of care. A boost of 1000 c, GY of radiation to the tumor bed confers a further reduction in local recurrence rates but at the cost of increase fibrosis and an accompanying decrease in cosmoses **(9).**

The majority of local recurrences most likely due to incomplete removal of the primary tumor **(10).**

A recurrence of malignancy in the ipsilateral breast could, in theory, be due to recurrence of residual disease or a new primary malignancy, a concept first articulated by veronesi **(11).** According to the hypothesis advance by veronesi, true recurrence are cases consistent with regrowth of malignant cells not removed by surgery and not killed by adjuvant radiotherapy. New primary tumors however are new malignancies arising from residual breast epithelium. Subsequent literature suggests that this concept is likely true with new primary malignancies having a better prognosis than true recurrence. Recurrence in another quadrant may originate from an unknown multicentric focus of the same monoclonal origin as the primary tumor, or may be a new, second primary tumor **(12,13).**

Age, tumor grade, tumor size, histological type, the presence of extensive duct carcinoma in situ (DCIS), lymph node status, the use of radiation boost to the tumor bed, lymphovascular invasion, estrogen receptor status and the presence or absent of multifocality all factors might predict for local recurrence **(14).**

In our study lymph nodes correlated to tumor recurrence and to local recurrence free survival with significant P value but not associated to overall survival.

Wapnir et al, noticed in their cohort that lymph node status wasn't a significant predictor of ipsilateral breast tumor recurrence **(15).** which was similar to what was noted in other comprehensive reports. In contrast nodal status was a highly significant predictor for local regional recurrence along with age and hormone receptor status **(16,17).**

In many others studies patients with positive axillary nodes do not have an increased risk of breast recurrence when treated with conservative surgery and radiation **(18,19).**

The lack of correlation between recurrence and lymph node due to use of radiotherapy and systemic treatment with either adjuvant chemotherapy or hormonal therapy was offered to node positive women early on following the discovery of chemotherapy as a treatment option. The early research demonstrated a statically significant improvement in survival for these women. Over the last quarter century the benefits of systemic adjuvant therapy for at least some node negative women has been explored and shown to be effective. While it is increasingly clear that some node negative women do benefit from systemic adjuvant therapy the current challenge for systemic treatment is to be able to identify those node negative women who will not derive benefit from systemic adjuvant treatment so as to spare those women the cost of going through unnecessary treatment **(20,21).**

CONCLUSIONS

In our study, lymph node status was correlated with tumor recurrence and local disease free survival but not to overall survival.

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