

***Lymphedema risk factors and quality of life  
questionnaire in cancer breast patients***

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# Contents

	<i>Page</i>
<i>List of Tables</i> .....	Iv
<i>List of Figures</i> .....	V
<i>List of Abbreviations</i> .....	Vi
<i>Abstract</i> .....	1
<i>Introduction &amp; Aim of the work</i> .....	3
<i>Review of the Literature</i> .....	
<i>Chapter I: Cancer</i>	ε
<i>Breast</i> .....	
<i>A.Incidence and Epiemiology</i>	ε
<i>B.Diagnosis,Pathology and Molecular biology</i>	5
<i>C.Staging and Risk Assessment</i>	9
<i>Chapter II: Management of local/loco regional disease</i> .....	13
<i>A.Local Treatment</i>	15
<i>B.Radiation Therapy</i>	21
<i>C.Adjuvant systemic treatment</i>	25
<i>D.Treatment of elderly patients</i>	30
<i>E.Male breast cancer</i>	38
<i>F.Follow up and long term implications</i>	39
<i>Chapter III: Arm Lymphedema</i> .....	ε3
<i>A.Definition,type and stage</i>	ε3
<i>B.Incidence</i>	ε6
<i>C.Relation of lymphedema and quality of life</i>	ε7
<i>D.Risk factors</i>	ε8
<i>E.Management</i>	ο1
<i>Patients &amp; Methods</i> .....	58
<i>Results</i> .....	74

...

<i>Discussion</i> .....	90
<i>summary &amp; Conclusion</i> .....	99
<i>References</i> .....	103
<i>Arabic Summary</i> .....	

## **List of Tables**

	<i>Page</i>
Table 1 WHO Classification of BMI.....	٦٠
Table 2 ECOG performance status.....	٦٣
Table 3 Age and social demographics.....	74
Table 4 Voluntary reported complaints of the patients.....	
Table 5 Comparison between lymphedema and non lymphedema patients regarding the personal risk factors.....	٧٦
Table 6 Prevalence of disease and treatments related risk factors among lymphedema and non-lymphedema patients.....	٨١
Table 7 Correlation between the ECOG performance status and upper limb lymphedema.....	٨٣
Table 8 Quality of life according to the severity of upper limb lymphedema.....	٨٨

## **List of Figures**

	<i>Page</i>
Figure 1	Intrinsic subtypes of breast cancer..... 8
Figure 2	Management of early breast cancer..... 13
Figure 3	Management of breast cancer according to hormone status..... 27
Figure 4	Measurements of arm lymphedema.....44
Figure 5	Water displacement.....46
Figure 6	Compression garments.....52
Figure 7	Classification of patients according to average interlimb circumference difference.....75
Figure 8	Percentage of lymphedema and non-lymphedema patients according to age.....77
Figure 9	Percentage of obese in lymphedema versus non lymphedema.....77
Figure 10	Distribution of lymphedema and non-lymphedema group according to presence or absence of DVT..78
Figure 11	Distribution of patients according to history of trauma to the limb of same breast side.....78
Figure 12	Lymphedema significantly more likely to decrease arm mobility compared to non-lymphedema.....79
Figure 13	Poor nail hygiene significantly more prevalent among lymphedema patients.....79
Figure 14	Lymphedema patients are more likely to be associated with history of arm infection.....80
Figure 15	Distribution of patients according to fibrosis secondary

	to radiation.....	82
Figure 16	Distribution of patients according to dermatitis secondary to radiation.....	82
Figure 17	Distribution of patients according to ECOG performance status.....	83
Figure 18	Mean scores of physical well-being subscale of FACT-B among patients.....	84
Figure 19	Mean scores of social/family well-being subscale among patients.....	85
Figure 20	Mean scores of FACT-B emotional subscale according to presence or absence of lymphedema.....	85
Figure 21	Mean scores of FACT-B functional subscale according to presence or absence of lymphedema.....	86
Figure 22	Mean FACT-G score in lymphedema significantly lower than in non-lymphedema.....	86
Figure 23	Mean score of FACT-B subscale according to presence or absence of lymphedema.....	87
Figure 24	Mean score of FACT-B trial outcome index according to presence or absence of lymphedema.....	87
Figure 25	Mean scores of FACT-B according to presence or absence of lymphedema.....	88

## **List of Abbreviations**

<b>Breast ca</b>	Breast cancer
<b>QOL</b>	Quality of life
<b>ECOG</b>	Eastern Cooperative Oncology Group
<b>FACT-B</b>	Functional Assessment of cancer Therapy-Breast
<b>FACT-G</b>	Functional Assessment of Cancer Therapy –General
<b>EORTC-QLQ-C30</b>	European Organization for Research and treatment of cancer – quality of life questionnaire-core questionnaire
<b>BMI</b>	Body Mass Index
<b>FACT-B toi</b>	FACT-B trial outcome index
<b>BCS</b>	Breast Cancer Subscale
<b>FWB</b>	Functional Well-being subscale
<b>EWB</b>	Emotional Well-being Subscale
<b>SWB</b>	Social/family Well-being subscale
<b>PWB</b>	Physical Well-being Subscale
<b>AICD</b>	Average interlimb circumference discrepancy
<b>DVT</b>	Deep Venous Thrombosis
<b>NCI-CTCAE</b>	National Cancer Institute-Common Terminology criteria For



	Adverse Events
<b>WHO</b>	World Health Organization
<b>MPJ</b>	Metacarpophalangeal joint
<b>US</b>	Ulnar styloid process
<b>LE</b>	Lateral epicondyle
<b>SF-36</b>	Short Form-36 Health Survey
<b>TENS</b>	Transcutaneous electrical nerve stimulation
<b>Tis</b>	Carcinoma in situ
<b>ET</b>	Endocrine treatments

<b>RT</b>	Radiotherapy
<b>FDG/PET</b>	Fluorodeoxy-glucose/positron emission tomography
<b>CT</b>	Computed tomography
<b>CA15-3</b>	Cancer Antigen 15-3
<b>CEA</b>	Carcinoembryonic Antigen
<b>MRI</b>	Magnetic resonance imaging
<b>ER</b>	Estrogen Receptor
<b>PgR</b>	Progesterone receptors
<b>HER2</b>	Human Epidermal Growth Factor receptor 2

<b>UPAPAI1</b>	Urokinase plasminogen activator, plasminogen activator inhibitor 1
<b>PCR</b>	Polymerase chain reaction
<b>BRCA</b>	Breast Cancer
<b>RAD</b>	Restriction site associated DNA markers
<b>DCIS</b>	Ductal Carcinoma In situ
<b>OS</b>	Overall survival
<b>AC</b>	Adriamycin/Cyclophosphamide
<b>CMF</b>	Cyclophosphamide/methotrexate/fluorouracil
<b>DFS</b>	Disease free survival
<b>ASCO</b>	American Society of Clinical Oncology
<b>G-CSF</b>	Granulocyte colony stimulating factor
<b>DEXA</b>	Dual Energy X-Ray absorption
<b>CYP2D6</b>	Gene encoding cytochrome P450
<b>AI</b>	Aromatase inhibitors
<b>GnRH</b>	Gonadotrophin releasing hormone

<b>CTH</b>	Chemotherapy
<b>LN</b>	Lymph Node
<b>IHC</b>	Immune histochemistry
<b>APBI</b>	Accelerated partial breast irradiation
<b>PMRT</b>	Post Mastectomy Radiotherapy
<b>WBRT</b>	Whole Breast Radiotherapy
<b>BCS</b>	Breast Conservative surgery
<b>RR</b>	Relative Risk
<b>CAP</b>	College of American Pathologist
<b>TNM</b>	Tumour,Node,Metastasis
<b>ALND</b>	Axillary lymph node dissection

## *Abstract*

Arm lymphedema is common complication of breast cancer treatment which once established cannot be cured. All women who have had surgical resection of the lymph channels are at risk for lymphedema (Ottini et al.2010). In Halsted's time, lymphedema occurred in up to 62% of patients. Few recent trials of modern therapies have addressed this problem. However little is known about lymphedema among Egyptian ladies who are having breast cancer. The aim of our study is to study the risk factors and assessment of effect of lymphedema in quality of life among breast cancer patients. The study was carried out in department of clinical oncology Kasr Alainy school of medicine included 102 Egyptian female breast cancer patients who attended our outpatient clinic who had previous breast surgery either modified radical mastectomy or conservative breast surgery 65 of them had ipsilateral arm lymphedema and 37 were with no lymphedema. Lymphedema was assessed clinically by our staff members in the clinic then by examination through arm circumference measurement at four certain points on both upper limbs then calculating the average inter-limb circumference discrepancy (AICD) of >5%. Lymphedema graded into three grades based on AICD into Grade 1,2,3 with difference 5%,10%,30% accordingly. Then assessment of 24 possible risk factors which were personal, disease and treatment related. Also assessment of QOL by FACT-B questionnaire.

According to definition and grading of arm lymphedema 60% of included cases had lymphedema grade1 20%, grade2 32% , grade3 9% of total number of patients. There were several risk factors that correlate significantly with lymphedema as age, BMI, presence of DVT, previous

trauma, poor mobility, bad nail hygiene, arm infection, radiodermatitis and fibrosis.

Also, lymphedema had direct effect on quality of life the physical well-being subscale of FACT-B is significantly lower in lymphedema patients, the emotional well-being subscale is significantly lower in lymphedema patients, the breast cancer subscale is lower in lymphedema patients and the FACT-B trial outcome index is significantly lower in lymphedema patients.

Also, the degree of lymphedema correlates significantly with the quality of life, the higher the lymphedema grade the lower the quality of life scores for all subscales/scales. Finally we can conclude that breast cancer and cancer related arm lymphedema is a major problem of cancer treatment which significantly affect the quality of life of breast ca survivors and it is better to be prevented than treated. The preventive measures include advocating minimal surgical procedures when feasible and breast conservative surgery should be encouraged in eligible patients. The use of advanced radiotherapy techniques with good treatment planning and quality control. Also, advising the patients to avoid the precipitating risk factors as bad nail hygiene, repeated infections and so on.

# INTRODUCTION AND AIM OF WORK

Breast cancer is the commonest female cancer worldwide forming almost 30-35% of all female malignancy and Secondary lymphoedema(LE) is arguably the most problematic and dreaded complication of breast cancer treatment(Gartner, et al. 2010). Although the incidence is generally accepted at approximately 30%, reported rates vary greatly, ranging between 2% and 83%.(Clark, et al. 2005)..As the survival rate among breast cancer patients has increased, LE has emerged as an important long-term morbidity that can cause functional, cosmetic, and psychological problems and which can impair survivors' quality of life. Lymphoedema may present immediately or years after treatment, although the majority of cases occur during the first 18 months(Williams, et al. 2005).The reported incidence of LE after breast cancer treatment varies widely, from less than 5%with lumpectomy alone to more than 60% when treatment includes mastectomy with ALND and radiation therapy (RT) (McLaughlin, et al. 2008). Little is known about lymphoedema prevention, and it is regarded as an incurable, progressive, disfiguring, and disabling disorder that is difficult to treat.

Our understanding is further complicated by inconsistent relationships reported for a range of potential personal, disease, and treatment-related risk factors.(Sener, et al. 2001).

The aim of work of our study is studying the risk factors of arm lymphedema among female patients with breast cancer and its impact on quality of life.

# Cancer breast

## Incidence and epidemiology

In 2012, the estimated age-adjusted annual incidence of breast cancer in 40 European countries was 94.2/100 000 and the mortality 23.1/100 000. The incidence increased after the introduction of mammography screening, and continues to grow with the ageing of the population. The most important risk factors include: genetic predisposition, exposure to oestrogens (endogenous and exogenous), ionising radiation, low parity and a history of atypical hyperplasia. The Western-style diet, obesity and the consumption of alcohol also contribute to the rising incidence of breast cancer (McTiernan 2003). There is a steep age gradient, with about a quarter of breast cancers occurring before age 50, and <5% before age 35. The estimated 5-year prevalence of breast cancer in Europe in 2012 was 1814572 cases (McTiernan 2003).

Prevalence is increasing, as a consequence of increased incidence and due to improvements in treatment outcomes. In most Western countries, the mortality rate has decreased in recent years, especially in younger age groups, because of improved treatment and earlier detection (Autier, et al. 2010). However, breast cancer is still the leading cause of cancer-related deaths in European women.

Breast cancer in males is rare, contributing to 1% of cases. The major risk factors include clinical disorders carrying hormonal imbalances (especially gynaecomastia and cirrhosis), radiation exposure and, in particular, a positive family history and genetic predisposition (Ottini, et al. 2010).