Original Research Article

Lymphedema in Mexico: A Clinical and Epidemiological Overview

Abstract:

BACKGROUND: There is insufficient clear epidemiological and clinical knowledge about lymphedema patient's population in Mexico, this limits its investigation. The objective of this study is to present basic lymphedema epidemiological data and its clinical characteristics based on the analysis of lymphedema patients' data collected from a specialized rehabilitation clinic in Mexico.

METHODS: This is a cohort study developed between 2015 and 2021. The study was developed in a private clinic specialized in oncological and peripheral vascular patients' rehabilitation. Clinical assessments and interviews were performed to collect each case's clinical history, considering its medical characteristics, physical activity and functionality and socio-demographic information, classified in a matrix, and later statistically evaluated.

RESULTS: Among 446 lymphedema patients gender distribution was represented by 81% female and 19% male. The mean age of 50.5 years (±44.5). The population was categorized into the following three different study groups according to diagnosis: Cancer-Related Lymphedema (CRL), Non-Cancer-Related Secondary Lymphedema (NCRSL) and Primary Lymphedema. 60.08% of the patients had CRL; 25.11% had NCRSL and 14.79% had primary lymphedema. Among the patients with CRL, 81% of them corresponded to breast cancer diagnosis, the rest are associated to 19 different cancer diagnoses. The most prevalent diagnosis was breast CRL 48.6%; phlebolymphedema 19.4%; congenital and praecox primary lymphedema 14.1%; lipo-lymphedema 4.8%. The BMI of 64% of the patients ranged in overweight and obesity. 37.6% of patients reported that had experienced pain in limbs affected by lymphedema and 45% of all patients reported some disability to perform one or more activities associated to their limb volume or limb discomfort. 82% of patients had no physical activity or performed less physical activity than what is suggested to his population group's recommendation.

CONCLUSIONS: This study stablishes a precedent on reporting the widest available epidemiological and clinical data of lymphedema in Mexico. Further studies are needed to report with a higher precision the epidemiological, clinical, and demographical data about each etiological group for a better understanding of lymphedema in Mexico.

Key words: lymphedema, secondary lymphedema, primary lymphedema, cancer related lymphedema, lipolymphedema, phlebolymphedema.

Introduction

According to Pubmed's MeSH database and International Society of Lymphology, lymphedema is defined as a chronic-progressive disease which produces rich protein edema, caused due to the obstruction of lymph vessels, lymph nodes or lymphatic function disorders**[1,2]**, this produces chronic fibrosclerotic changes in tissues and a chronic inflammatory response **[3];** its progression affects physical function, quality of life**[4]**and the social and economic framework of patients **[5-7]**.

Lymphedema may occur due to congenital malformations of lymphatic and venous system or secondary to different agents that damage lymphatic structures. It is estimated that more than 250 million patients around the world suffer a lymphatic disease **[8]**. Based on International Society of Lymphology consensus, lymphedema is classifiable into 4 stages based on clinical characteristics. **Table 1**

Lymphedema is classified into two etiological branches: primary and secondary lymphedema. Depending on developing onset time, primary lymphedema is subdivided into: 'congenital', when present at born and until two years old; 'praecox' between 2 and 35 years old and 'tarda' after 35 years old. This classification includes all primary lymphatic anomalies where lymphedema is present, encompassing yndromic, hereditary, non hereditary and complex vascular malformations. **[9]**

Secondary lymphedema includes all lymphedema caused by external factors or as consequence of a main disease; here is included Cancer-Related (neoplasm or tumor, lymph node removal surgery, radiotherapy), parasite infection such as filariasis, recurring skin infections or chronic exposure to inflammatory agents such as podoconiosis, direct trauma, obesity, chronic venous disease and chronic edema related to hepatic, nephrotic or cardiac disease, or multiple simultaneous factors in absence of lymphatic a primary disease. **[8-10]**

Background

There is a deficiency of clear clinical and epidemiological data about lymphedema in Mexico. **[11]** Mexican public health services do not have a clinical practice guideline to diagnose, manage or understand different types of lymphedema; public catalogues of Mexican clinical practice guidelines barely suggest lymphedema management, but only as consequence of breast cancer processes **[12]** which is the most documented type of lymphedema in the country, however, these guidelines are based on foreign epidemiological and clinical data; this may be influenced by the absence of local data that targets this population.

Another example of the absence of local lymphedema information to base clinical guidelines is the 2019 and 2020 Mexican Consensus about diagnosis and treatment of breast cancer, which dedicates a chapter to physical therapy for breast cancer patients and includes suggestions about lymphedema management, but its statistics still based on foreign epidemiological data. **[13, 14]** No other Mexican consensus or guideline document states diagnosis, treatment algorithm or even employs local epidemiological data about lymphedema, it is barely mentioned in Latin-American consensus of venous wounds published in *Revista Mexicana de Angiologia* in 2013 **[15].**

In 2014 Gutierrez-Pérez and Avalos-Nuño reported a prevalence of 41% of lymphedema among breast cancer patients that underwent mastectomy.**[16]** In 2019, Chavira et. al reported a 23% prevalence of lymphedema in breast cancer patients that underwent mastectomy. **[17]** It is important to note that it was not possible find during the research, any local epidemiological or clinical data about primary lymphedema or lower extremity secondary lymphedema beyond case report studies or anecdotal documents.

Objective

The purpose of this study is to report basic epidemiological and clinical data of lymphedema patients' population and to define its different types in Mexico.

Materials and methods

This study aimed to attain epidemiological and clinical characteristics data of Mexican lymphedema patients. Employing information collected via direct clinical interview and physical examinations with previous written and verbal informed consent signed by patients or primary caregivers who agreed to share this information in order to use such data in the study while keeping its privacy.

Between January 2015 and June 2021, 722 Mexican patients went to rehabilitation service due to limb swelling, chronic edema and lymphedema (in risk or onset). They were clinically assessed and interviewed in Fi Fisioterapia Integral S.C. a private physiotherapy clinic that offers specialty rehabilitation services for patients with oncological and vascular peripheral disorders.

The clinic is in Guadalajara, the second major city in the country, and it represents, after Mexico City the most important center of public and private health care services.

Data was collected during clinical assessment appointments directed by lymphedema specialized clinicians employing a clinical datasheet file tool which included complete clinical history, clinical characteristics, socio-demographic data, and physical functional status.

A digital spreadsheet matrix was created employing all data and set to order, to classify and to organize diverse items and information gathered, to later analyze it statistically employing both excel software and manually calculated to identify and limit mistakes.

Each patients' data was classified into three broad categories: Cancer-Related-Lymphedema, Non-Cancer-Related Secondary Lymphedema (NCRSL) and Primary Lymphedema.

Patient inclusion criteria

1. Patient or primary caregiver signed informed consent to employ clinical history, clinical characteristics, and sociodemographic data for the study.
2. Patients with previous cancer treatments (lymphadenectomy/radiotherapy), undergoing cancer treatment or with cancer diagnosis without treatment.
3. Patients diagnosed with any cancer related lymphedema.
4. Patients diagnosed with primary lymphedema (syndromic, hereditary, non-hereditary and complex vascular malformations)
5. Patients diagnosed with secondary lymphedema non-related to cancer. (Exposition to inflammatory agents, chronic skin infection, direct trauma, burns, surgeries, obesity, chronic venous diseases, and chronic lymphedema due to lymphatic failure related to hepatic, nephrotic, cardiac disease, or mixed causes)

Exclusion criteria

1. Patient unwilling or unable to participate for any reason.
2. Denial to sign consent letter or approval to share information by patient or primary caregiver.
3. Traumatic acute edema
4. Acute edema associated to trauma surgery
5. Pure lipedema
6. Acute edema (less than 12 weeks) due to cardiac, hepatic, nephrotic, pharmacological, immobility or undetermined causes.

Out of 722 patients 446 of them met the inclusion criteria; it is important to mention out that 59 out of 276 patients who did not met the inclusion criteria had lipedema diagnosis without any symptomatic lymphatic or venous involvement, but intermittent swelling or incorrect previous lymphedema diagnosis was a motive of consultation.

The following items were included in the clinical file datasheet and spreadsheet:

Gender, age, height and weight measured at clinic, body mass index, diagnosis and its clinical staging, affected segments, comorbidities history and characteristics, surgery history, previous and ongoing treatments and its characteristics, pain, infection history, physical activity level, reported disability for daily living activities, occupation, among others for further studies.

Results

A total of 446 patients were included in the analysis; 81% (361) female and 19% (85) male; mean age of 50.5 years (±44.5), Male's mean age of 48 years (±44) and women's mean age of 53 years (±47.25).

The population was categorized into three different study groups according to diagnosis: Cancer-Related Lymphedema, Non-Cancer-Related Secondary Lymphedema (NCRSL) and primary lymphedema. 60.08% (268) patients had Cancer Related Lymphedema; 25.11% (112) had NCRSL and 14.79% (66) patients had some type primary lymphedema.

Among the 268 patients with cancer related lymphedema, 81% of patients corresponded to breast cancer diagnosis, the rest of them were associated with other 19 different kind of cancer diagnosis.

The most prevalent diagnoses were breast cancer related lymphedema 48.6%; phlebolymphedema 11.8%; Praecox primary lymphedema 7.6%; congenital primary lymphedema 6.5%; lipo-lymphedema and lipedema concomitant lymphedema 4.8%. **Table 2**

The top 3 affected limbs or segment distribution were bilateral lower extremities 25.7%, upper left extremity 24.2%; upper right extremity 23%. **Table 3**

The general distribution of clinical staging as follows: 14.3% in stage 0 (54) of patients, (all of them with a CRL), 15.5% (70) in stage I, 53.5% (239) in stage II and in stage III 16.3% (73). Distribution by gender is detailed in Table 4. **Table 4**

Regards to body mass index was found a mean of 30 BMI (only adults were considered); BMI has been documented as being related to lymphedema development and/or progression. **[18]** The following distribution of BMI was found: 1.5% (7) in <18.5 BMI or low weight; 23.3% (104) 18.5–24.9BMI in normal weight range; 31.8% (142) 25-29.9 in overweight range; 32.2% (144) >30BMI in obesity range; 7.8% (35) were unable to evaluate due to clinical difficulties during assessments such as extreme mobility limitation to measure weight and/or height. 64% (286) of patients ranged above ideal BMI. **Figure. 1**

37.6% (168) reported history of pain experience in limbs affected by lymphedema, all patients associated their pain experience to their condition or stated that their pain was caused by this condition.

Antecedent of recurrent regional or local infection such a bacterial cellulitis, lymphangitis and/or dermatolymphangioadenitis in lymphedema affected limb was reported by 23.7% (106) of patients.

9.6% (43) of patients had a record of thrombotic event in affected limb. Among them, 60.4% was NCRSL; 34.8% (15) CRL and 4.6% (2) primary lymphedema.

6.05% (27) of patients had a non-healed wound in the affected limb or side; the most frequent cause was associated to venous disease and post-vascular surgery for lower limbs, failed to heal post-surgical and oncological etiology for upper limbs. History of surgery in limb or side affected by lymphedema was overall 67.7% (302).

Among Cancer Related Lymphedema, 95.1% (255) had history of surgery in limb or underwent surgery prior to lymphedema development; mastectomy with or without lymphadenectomy, biopsy, sentinel lymph node procedure. The rest developed lymphedema associated to radiotherapy or active regional neoplasm.

33% (37) of the patients with NCRSL had history of surgery in limb or underwent surgical procedure prior to lymphedema development; being the most frequently reported: saphenectomy, arthroplasty, total hip replacement and osteosynthesis.

From the sample of primary lymphedema 7.5% (5) had history of surgery in limb or affected segment, prior to lymphedema development, being saphenectomy and trauma surgery responsible for 100% of the cases.

In 1.3% (6) of the cases patients referred to have had a previous surgical procedure to treat lymphedema, 0.6% (3) debulking procedure and 0.6% (3) lympho-venous anastomoses (LVA).

45% (200) of patients with a lymphedema diagnosis reported disability to perform one or more activities. Difficulties to develop daily living tasks were referred: moving the limb, moving objects, wearing clothes, personal care, eating, walking, climbing stairs, working, waking up

from a chair or a bed, changing his position, participating in social and familiar activities or exercising; all of them were referred as caused by lymphedema volume or its symptoms and were considered and classified by clinical staging of lymphedema. **Table 5.**

Concerning to physical activity, patients' activity level and exercise habits were classified into 3 groups, the ones doing minimum or above minimum physical activity recommended for its population group, and those doing below physical activity recommended, in which we included sedentary patients.

The recommendations were taken from American College of Sports Medicine (ACSM) *Exercise prescription guideline for cancer patients*: 150 min/week of moderate-intensity or 75 min/week of vigorous-intensity activity, or an equivalent combination, and muscle-strengthening activities at least 2 days/week for each major muscle group. **[20]** For NCRL and adults with primary lymphedema the recommendation was based on ACSM and Centers for Disease Control and Prevention (CDC) minimum exercise prescription guidelines for adults which is 150min/week of moderate-intensity or 100 min/week of vigorous-intensity activity and muscle-strengthening activities at least 2 days/week for each major muscle group. **[21]** For elderly and other special populations the reference was the *ACSM Guidelines for chronic disease and special population recommendations*. **[21]** For youth and children between 12-17 years, it was considered the equivalent to 60 min of daily moderate and high physical activities as ACSM suggests. We did not include children under 12 years into this account. **[22]**

13% (57) of all patients performed at or above minimum recommended physical activity for their population group, 82% (366) of patients had no physical activity or performed under the proper population group's recommendation. 5% (23) was unable to classify or did not answer.

As for their occupations, the findings are the following: 41.9% (187) of patients only performed home tasks, 16.8% (75) did work that involves high physical effort, 20.1% (90) did office work, 3.8% (17) are health care professionals, 6.7% (30) are retired, 5.3% (24) are students, 0.8% (4) are infants and 4.2% (19) did not answer.

Discussion

To assess a highly heterogeneous population represents difficulties to determine which items may be crucial to report, nonetheless, any information is useful in an understudied population in Mexico.

Data collection may be biased due to uneven criteria between clinicians while assessing complex conditions and unavailability of image studies from all patients to confirm diagnosis, such as lymphoscintigraphy or Near-Infra-Red lymphatic imaging. Majority of diagnosis where clinically determined.

The number of patients for the study was once divided by etiological categories, the relevance of numbers for definitive conclusions may have been reduced. 446 patients is a number that provides some information but still represents a small cohort considering a worldwide prevalence of 4%. If this percentage is transferred to Mexico this estimated general prevalence, it may represent around 5,000,000 people suffering of lymphedema. To our knowledge, this is the largest and only study with a representative population of people with different types of lymphedema, in which were included Cancer Related Lymphedema, NCRSL, and Primary Lymphedema. This study pretends to stop the invisibility of this population in Mexico.

The study was developed in a private clinic, which may have played a role due to the economical barrier to access private services for majority of the Mexican population, and hat lymphedema is being underdiagnosed and undertreated in the Mexican public health system.

Considering that 81% of patients were woman, it is noticeable a gender bias at least in lymphedema diagnosis distribution; while most of them are related to Cancer Related Lymphedema (CRL) this may be explainable by the fact that the majority of CRL are patients with Breast Cancer diagnosis, nonetheless, 19 different kinds of cancer in which lymphedema is reported and where morbidity is not almost exclusive for women (except for womb). There still is an important rate of cancer associated to lymphomas, melanomas, sarcomas, and those exclusive to males such as prostate and testicle. A question that came from the discussion is, why males with CRL are not so numerous? Probably cultural, economic and gender roles may impact the access to diagnosis and treatment of lymphedema in males. It is needed to explore gender distribution in different lymphedema etiological causes to make sense of this situation, as well as its psychosocial and cultural relations.

Mean age of patients (50.5yo) can be considered as mature adults who are still in a productive phase of life considering life expectancy, in this context, a major preoccupation is that 45% of them reported disability or difficulty to perform one or more daily-life activities.

69.8% of patients were in clinical stages II and III, stages where it is needed not only control treatment but interventions seeking to revert volume increasing; there is certain time since beginning of symptoms to evolve up to these stages. Awareness should be raised for clinicians and patients, and encourage action on early stages to avoid this population growth on advanced

stages. The age when attended in relation to beginning of symptoms, must be taken into count to avoid late diagnosis and treatment for patients in which lymphedema was developed in a younger age.

Going back to gender bias and its implications, it was also evident that staging distribution between male and female was remarkably different. The minority of male were in stage I (8.1%); this means that patients had already initial symptoms; no male patients in stage 0 were identified, while most of them were in stages II and III where treatment to reduce limb volume is indicated, also, when its impact in disability seems to be worse in all lymphedema types **(see Table 5)**. More than 1/3 of women were in early stages (35.2%) 0-I, where preventive care, education and lifestyle is usually indicated to avoid progression of the disease, it is also where disability and functional impact is less reported in all lymphedema types. 64.8% of women were in stages II and III, a greater number for advanced stages which is concerning. At least, in contrast to male's situation it is being earlier the attention on at least for a 1/3 of females.
We hypothesize this gender phenomenon is given by a huge variety of factors and their interactions, among them, the social and economical framework considering that most men in Mexico still play a gender role as providers for their families, where man continue working unattended until they are unable to work or develop its socio-economical activities; cultural and gender behavior roles where men tend to avoid medical attention until it is a disabling problem.

The Insufficiency of local clinical attention and the lack of documents in scientific literature that raise awareness of other lymphedema etiologies where the gender distribution also affects males along than the most popularized breast CRL; which limits education for healthcare professionals on early detection and proper action approaching this pathology. Further studies are encouraged to understand and approach this phenomenon.

Another point to be seriously considered are an axis of three elements that are closely related which are BMI, physical activity and reported disability; which are important elements of quality of life. 64% of patients were in obesity and overweight range, 82% had sedentary behavior and did not perform any physical activity or performed below what is recommended to their proper population, while 45% reported disability. The question is what came first? The high BMI, the lack of physical activity, the lymphedema or the disability?, or even how they correlate along patient's life.

While this may be complex to answer, we should consider the fact that lymphedema is a progressive disease, this means that it is not usually its worse presentation once onset. As it evolves clinically, it also may tend to play a predominant role in disability, physical activity and lifestyle behaviors: but also; in other contexts as physical activity diminishes and lifestyle behaviors tend to be more sedentary over time. Unset lymphedema may develop or evolve as these factors become relevant over time; studies are needed to identify the influence of these elements in lymphedema development or evolution over time.

The fact that 82% of patients were sedentary suggest more about a general lifestyle, regardless of lymphedema etiology and age considering the heterogeneity of the sample. Surely sedentary behavior may be accentuated due to poor professional and precise indication of activity, social framework, economic status, and cultural backgrounds related to lifestyle preferences and even the proper lymphedema evolution.

This said, its commonly known that sedentary lifestyle is a risk factor for overweight and obesity and consequently it may be correlated with lymphedema development and progression;

lower levels of physical activity also impacts in the development of diverse morbidities and has a high correlation with physical disability. Along this, it should be noted that the fact it was also consistent with disability being more prevalent in advanced clinical stages, each time around twice than previous stage in all lymphedema etiologies (Table 5). A vicious circle including physical activity level, BMI, disability, and lymphedema stage may be highly related and settled due to lifestyle and physical activity factors in lymphedema context. We encourage to explore the role and relations between these elements, which we foresee may be responsible of what we see clinically and functionally in lymphedema patients; interventions that impact into these factors may be valuable for lymphedema integral management.

It is usually thought that lymphedema is not painful, hower more than a 1/3 of patients reported pain history in limbs affected or associated to lymphedema itself; this may be due the misconception of healthcare professionals labeling condition as “not painful” and reducing the complex pain problem to classical histologic explanations rather than an actual complex problem that involves not only the biological status of tissues but also psychological, social and cultural status of the individual, the lack of clear pain assessment methods for lymphedema patients was a limitation for this study. Further research on pain experience in lymphedema patients will be valuable.

In regard to comorbidities (like acute infections, chronic infections, thrombotic events) and previous surgical trauma being prevalent in lymphedema extremities we may note that surgery, thrombosis and regional infection were frequent as antecedent; these comorbidities may act as triggers and factor for the development and evolution of lymphedema rather than direct cause.

95.1% (255) of patients with CRL had history of lymph node removal surgery in limb or underwent surgery prior to lymphedema development. The rest developed lymphedema associated to radiotherapy or active regional neoplasm. This should warn clinicians who treat cancer patients to pay special attention to patients who are undergoing or underwent these treatments. This number is much higher than those reported by Gutierrez-Pérez (41%) and Chavira (23)% of lymphedema among breast cancer patients that underwent mastectomy with and without lymphadenectomy and radiotherapy.**[16-17]** The differences are clearly related to the studies' methodology, while Gutierrez-Perez and Chavira did not followed up patients in the mid or long term, we have considered patients who finished cancer treatments even 20 years back before lymphedema was onset and the fact that they only studied breast cancer cases.

Once again, this should create a sense of awareness and shows the need of properly study the pathology, better education for professionals while following-up and educating patients after and during cancer treatment in the long term. The following question to raise is: May the risk of lymphedema development increase through time by aging itself?

Likewise, strategies such as screening through near-infrared lymphatic imaging in patients without symptoms but at risk of developing lymphedema may play a role on predicting with who to have certain cares to avoid lymphedema evolution or precise personalized indications; also giving the importance to these technologies and imaging techniques should be considered in the clinical practice to increase the precision of diagnosis in complex cases where clinical assessment alone is limited. **[2]**

We consider that the lack of extensive epidemiological clinical knowledge of lymphedema in Mexican population is a contributing factor that may cause poor development and investigation in the field of lymphology, this also impacts clinical practice, punctual patient's precise diagnosis and proper treatment due to a lack of specific clinical algorithms based on actual data. In Mexico, lymphedema still not seems to be a priority disease to be investigated and managed, evidently by the lack of information available on the topic. This study represents an effort to bring awareness about this population in Mexico and Latin America.

Conclusions

This study sets a precedent on reporting the broadest available epidemiological and clinical data of lymphedema in Mexico, which appears to be an underrated and understudied pathology. Further studies are needed and encouraged to report with a higher precision epidemiological, clinical and demographical data about each etiological group. All this for a better understanding of lymphedema in the country and in Latin America. These aiming to improve comprehension and support visualizing the correlation with complex social and biological contexts, that can serve as foundations to create precise clinical guidelines for lymphedema population.

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TABLES

Table 1.— *Lymphedema Staging*

Stage	Characteristics
0	No clinical evidence of increased volume, patent damage reported in clinical history (i,e: lymph node removal, lymph node biopsy, radiotherapy).
I	Reversible discreet edema, soft and tender that increases along the day, disappears completely during the night, rest or elevation of the limb; differences between limbs not above 2 cm or 200 mL volume.
II	Irreversible edema that does not improve o minimally improves during night, rest or elevation; tends to go worse. Fibrosclerotic changes begin to be evident due to skin thickening and color changes, differential volume is evident at single sight, diameter of limbs is equal or superior to 2cm or 200mL volume.
III	Presents important or massive deformities due to increased volume of the extremity or a segment of it, present skinfolds, articular sulcus, big fibrotic areas, thickened skin, colour changes, sometimes presents papillomatosis or lymphatic cysts, lymphorrea and wounds; recurrent or frequent skin infection is usual. Limited functionality of the limb and disability are present.

Table 2.— *Lymphedema Diagnosis Prevalence*

Lymphedema	**Patients**	**% Prelavence**
Cancer-Related Lymphedema		**(60.08%)**
Breast cancer	217	48.6%
Metastasic cancer	8	1.7%
Prostate cancer	7	1.5%
Womb cancer	6	1.3%
Sarcoma	5	1.1%
Melanoma	4	0.8%
Hodgkin lymphoma	3	0.6%
Osteosarcoma	2	0.4%
Colon cancer	2	0.4%
Condrosarcoma	2	0.4%
Lymphoma	2	0.4%
Penis cancer	2	0.4%
Serous epithelial cancer	1	0.2%

Tongue cancer	1	0.2%
No Hodgkin lymphoma	1	0.2%
Liposarcoma	1	0.2%
Bladder	1	0.2%
Neck	1	0.2%
Jaw	1	0.2%
Uterine cancer	1	0.2%
NCR Secondary Lymphedema		**(25.11%)**
Phlebolymphedema/ chronic venous insufficiency related	53	11.8%
Lipo-lymphedema and lipedema concomitant	18	4.8%
Post-thrombotic syndrome related	11	2.4%
Multisystemic chronic disease (mixed)	11	2.4%
Trauma related	4	0.8%
Obesity related	3	0.6%
Nephrotic disease related	3	0.6%
Heart disease related	3	0.6%
Arteriovenous fistula for hemodialysis related	2	0.4%
Hepatic disease related	2	0.4%
Infection related	1	0.2%
Trauma surgery related	1	0.2%
Primary lymphedema		**(14.79%)**
Praecox	34	7.6%
Congenital	29	6.5%
Tarda	3	0.6%

Table 3.— *Lymphedema Limb Distribution*

Affected segment	Patients	%
Bilateral lower extremities	115	25.7%
Upper left extremity	108	24.2%
Upper right extremity	106	23.5%
Lower left extremity	50	11.2%
Lower right extremity	36	8%
Bilateral upper extremities	14	3.1%
Genital	8	1.7%
Head, face, and neck	5	1.1%
Multisegmental	3	0.6%
Abdominal	1	0.2%

Table 4.— *Gender Distribution*

Stage	Male % (85)	Female % (361)
0	0	17.8% (64)
I	8.2% (7)	17.4% (63)
II	71.8% (61)	49.3 (178)
III	20% (17)	15.5% (56)
Table IV		

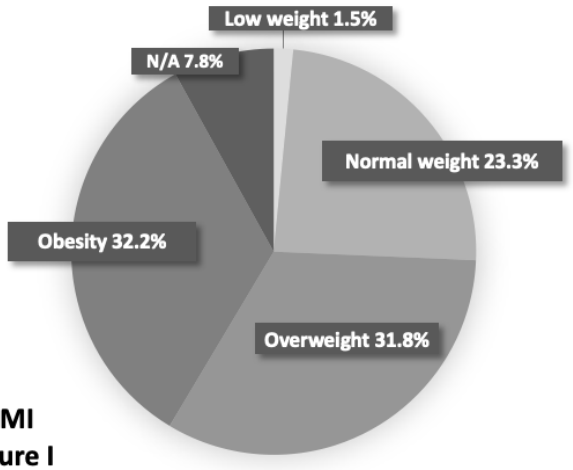
Table 5.— *Disability and Stage by Group*

Stage	Cancer-Related Lymphedema disability report	Non-Cancer-Related Secondary Lymphedema disability report	Primary Lymphedema disability report
	% / (Patients)	% / (Patients)	% / (Patients)
0	27.6% (18)	N/A	N/A
I	26.3% (15)	25% (12)	3% (2)
II	43.7% (49)	50% (41)	10.6% (7)
III	82.3% (28)	81.8% (18)	16.6% (11)

Table V

TITLES OF FIGURES

Figure 1.— *Body Mass Index Distribution*



BMI
Figure I