Breast Cancer Rehabilitation, Screening, and Lymphedema Prevention

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Learner Outcomes

- Identify evidence based methods for evaluation and screening in the breast cancer population.
- Identify benefits of a multidisciplinary approach to breast cancer care and roles of members of the multidisciplinary team.
- Recognize treatment techniques and patient education associated with best outcomes in breast cancer patients.
Outline

- Epidemiology Breast CA
- Breast Cancer Team
- OT’s Role in Screening and Rehabilitation
- Axillary Web Syndrome/Cording
- Lymphedema Prevention
- Return to Roles and Function

Epidemiology Breast CA

- Risk of Breast CA in US
  - 1 of 8 women will be diagnosed with breast CA in their life
  - 1 of 1000 men will be diagnosed with breast CA in their life
- Prevalence in US = 3.1 million women in US with history of breast CA as of Jan 2018
- Sequelae of Breast CA
  - Lymphedema
  - Axillary Web syndrome
  - Post mastectomy pain syndrome
  - Brachial plexopathy
  - RTC pathology

Breast Cancer Team
Multi Disc Teams
Tumor Boards

Members of the Tumor Board

- Oncologists
- Breast Surgeon
- Reconstructive Surgeon
- Pathologists
- Radiation Oncologists
- Radiologist
- Certified Breast Nurse Navigators
- Social Workers
- Occupational/Physical Therapy
Tumor Board Template

- Template that standardizes documentation and process at Tumor Board
- Can be developed to facilitate adherence to national quality standards

  
  • Measure intervals were before and 10 weeks after initiation of standardized documentation template at Breast MTB
  • Adherence rates improved for radiation treatment (98% vs 65%, \( p = .045 \)) and hormone therapy (85% vs 62%, \( p = .002 \)) and no significant change noted with evaluation for cytotoxic chemotherapy (80% vs 85%, \( p = 1.00 \))

Tumor Board Benefits

  
  • Retrospective study before and after initiation of breast cancer MTB
  • Improved Survival
  • Decreased variability in survival among hospitals in West Scotland, UK
Case Presentation

- Oral Presentation
- Ability to review relevant reports and scans real time
- Discussion of Best Treatment Plan with all members involved in discussion

Demographics in Case Presentation

  - Breast cancer, head/neck, GI, and neuro-oncological MTB's
  - Most case presentations by medical oncologists (78.3%), less by surgeons (14.7%) and least by radiation oncologists (2%)
  - Most MTB’s were lead by medical oncologists
  - Despite surgeons presenting infrequently their contributions to discussion were essential and surgeons attended the most MTB's
Why does the OT or lymphedema therapist need to be here?

- Understand the case better and treatment interventions needed that may increase risk for
  - Lymphedema
  - Reduced ROM and Strength in shoulder
  - Precautions that will need to be followed through care
- Multi Disciplinary Clinic may follow a MTB
  - Discuss plan of care with patient
  - Initial pre operative/cancer treatment screening by OT baseline measurements for girth

OT’s Role in Rehabilitation and Screening
Why are we so important to this population?

Increased survivorship and sequelae of breast CA

Physical and psychological after effects of Breast Cancer can decrease quality of life for these patients

When should Evaluation Occur?

- Prior to surgery/cancer treatment
  - Provides a baseline for volume of limb and shoulder function prior to any treatments
  - Provides opportunity for functional baseline
  - Provides an opportunity for education of lymphedema prevention and expected post operative course
- After Surgery - exact timing may vary and this often is after drains are removed
  - Also dependent on type of surgical intervention and the setting you are working in
Need for Pre operative Baseline Arm Volume Measures

  - Levels for diagnosis of subclinical lymphedema (LE) were set at 5% Relative Volume Change (RVC) and breast cancer related lymphedema (BCRL) were set at 10% RVC
  - Both under and over diagnosis were found without baseline measurement prior to surgery at rates of 41.6% and 40.1% respectively with subclinical LE and 50.0 and 54.8% respectively with BCRL

Components of Pre Surgical Screen

- Thorough medical history
- History of diagnosis and plan of care established at MTB
- Functional Outcome Measure – DASH
- Limb volume measurements
  - Circumferential
  - Bio Impedance Spectroscopy
  - Lymphoscintography
- AROM in BUE’s
- Education on Lymphedema Prevention and Post Operative Plan
Components of Post Operative Evaluation

- Thorough medical history
- History and Treatment for Breast Cancer
- Functional Outcome Measure and Reported Functional Restriction
- Health Related Quality of Life (HRQOL)
- Subjective UE complaints
- Pain
- Edema Assessment
- AROM
- Dynamometry
- Scar, Wound, Skin Assessment
- Sensation

Medical History

- Conditions which may increase risk of Lymphedema
  - Obesity
- There are a wide variety of conditions that are also contraindications to all or part of the complete decongestive therapy (CDT) which is used to treat lymphedema patients; two examples (not exhaustive)
  - Congestive heart failure
  - Recent Abdominal Surgery
### History of Diagnosis and Treatment

- Date of Diagnosis
- Type and Stage of Cancer
- Metastatic Disease and location
- Cancer treatment thus far
  - Chemotherapy
  - Radiation
  - Hormone therapy
  - Surgical Intervention
  - Lymph node dissection (how many)

### Functional Outcomes Measures and Functional Restrictions

- Disabilities of the Arm Shoulder and Hand (DASH)

  - Eight patient reported upper extremity outcomes were found to be used with the breast cancer population
  - Recommended that the DASH be used in the breast cancer population as with the available research this self report measure had the largest effect sizes for construct validity and responsiveness
Health Related Quality of Life (HRQOL) Measures

  - Eleven Measures were found to have satisfactory psychometric properties and were recommended
  - Four of these were also designed for and validated in the breast cancer population
    - European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire-Breast (EORTC QLQ-B23)
    - BREAST-Q
    - Functional Assessment of Cancer Therapy-Breast (FACT-B)
    - FACT-B+4 (for patients with lymphedema)

HRQOL

- EORTC QLQ-B23 – 10 to 15 min
- BREAST-Q – 8 to 12 min
  - [http://qportfolio.org/breastq/get-the-breast-q/](http://qportfolio.org/breastq/get-the-breast-q/)
- FACT-B – 8-13 minutes
  - [http://www.facit.org/facitorg/questionnaires](http://www.facit.org/facitorg/questionnaires)
- FACT-B+4
  - [http://www.facit.org/facitorg/questionnaires](http://www.facit.org/facitorg/questionnaires)
Subjective Complaints Related to Ipsilateral Arm

- Limb Heaviness
- Limb fullness
- Tingling
- Numbness
- Differences in swelling AM vs. PM
- Temperature changes
- Cords/Bands
- Skin Changes
- Joint stiffness
- Joint Pain

Pain

- Numeric Rating Scale
- Visual Analogue Scale
- Verbal Rating Scale
- McGill Pain Questionnaire
  - Addresses qualitative components of pain
- All HRQOL questionnaires address pain but scale varies from the traditional 0-10 scale
- Location, when, what
- Is the pain strange, not associated with movement/a cause, at a joint, or seems boney?
Edema Assessment

- Stemmer’s sign – inability to pinch up skin on back of fingers or toes = positive stemmer’s sign
- Pitting
- Water Displacement/Volumeter
- Circumferential Measurements
- Bio impedance
- Perometry


- Overview of all current methods and research supporting these methods for assessment of lymphedema

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Edema Assessment

Pitting Edema

<table>
<thead>
<tr>
<th>Classification Criteria</th>
<th>1+ Pitting</th>
<th>2+ Pitting</th>
<th>3+ Pitting</th>
<th>4+ Pitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>2 mm or less</td>
<td>2-4 mm</td>
<td>4-6 mm</td>
<td>6-8 mm</td>
</tr>
<tr>
<td>Time until resolution of pitting</td>
<td>Recedes rapidly</td>
<td>10-15 sec</td>
<td>Greater than 1 min</td>
<td>2-5 minutes</td>
</tr>
</tbody>
</table>
Circumferential Measurements

- Interval Based 4 cm moving up arm – fingertips or starting at wrist
- Landmark Based Measuring at wrist, elbow, axilla, and 10 cm proximal and distal from elbow
- Calculations = Frustum method and disk model method
- Inter rater reliability issues – calibrate yourselves

\[ V_{frustum} = \frac{1}{12\pi} \sum_{i=1}^{n} L(C_i^2 + C_i C_{i-1} + C_{i-1}^2) \]

- Disk Method (Volume of a Cylinder)

\[ V_{cylinder} = \frac{1}{4\pi} \sum_{i=1}^{n} LC_i^2 \]
Circumferential Measures


- High Validity and reliability with circumferential measurements taken at landmarks when compared to water displacement – circumferential measures did result in higher volume
- Landmarks versus distance from fingertip performed better in regard to Minimally Detectable Change (MDC) and Limits of Agreement (LOA) when they were compared to water displacement

Circumferential Measures


- N = 287 female patients with unilateral breast cancer prospectively screened for BCRL – comparing circumferential measurements (CM) with landmarks, CM at 4 cm intervals, and Perometry.
- No Difference in total arm volume comparing circumferential measures and Perometry
- Landmark circumferential measures were comparable when screening for relative volume change (RVC) ≥ 10% but sensitivity was only 63.22%-66.7% for RVC of 5-10%
Bio – Impedance Spectroscopy (BIS)

- BIS unit sends a low frequency electrical current through the patients affected and unaffected arm
- The low level current travels through Extracellular Fluid (ECF) and with more fluid the lower the impedance which is measured in Ohms (standard measurement unit of electrical resistance)
- Impedance Ratio is as follows:
  \[
  \frac{\text{Impedance of Healthy Arm}}{\text{Impedance of Affected Arm}}
  \]

BIS

- So as impedance decreases in the affected arm because of ECF – the denominator is smaller and the ratio becomes larger
- Contraindications = implanted electrical devices and pregnancy
- L Dex scores outside of normal range and a score that has changed more than 10 points may represent early lymphedema

- Prospective study of cohort of 67 Breast Cancer patients were assessed for changes in volume pre-operatively, post-operatively at 3, 6, 9, and 12 months; then at the 2 and 3 year mark.
- 18 of 67 patients were identified as developing BCRL; 16 (89%) were stage 0 and 2 (11%**) were stage 1
- Demonstrates a protocol for early identification of BCRL
BIS Evidence


- N = 10, Compared Perometry and BIS Inter-rater Reliability (r=0.987), intrarater reliability (r=0.993), and concurrent validity r=-0.904; BIS is a valid and reliable when compared with perometry.

Perometry

- An infrared optical electronic scanner scans the limb producing circumferential measurements at intervals that then are calculated into limb volume.
Perometry Evidence

Batista, B.N., Baiocchi, J.M.T., Camponholi, L.L, Bergmann, A., & Duprat, J.P. Agreement between perometry and sequential arm circumference measurements in objective determination of arm volume. *J Reconstr Microsurg* 2018;34:29-34

- N= 91 compared perometry and Circumferential measurements for their agreement of total volume of the largest limb and the volume difference between limbs – when compared using correlation test the two methods were not in agreement with one another – therefore it is not recommended to compare arm measurement between the two methods.

Perometry Evidence


- Study compared both BIS and Perometry to lymphoscintography to determine which of these methods was best for accuracy in diagnosing lymphedema
- Both Perometry and BIS were found to have high sensitivity (81% and 76%, respectively) and specificity (96% and 93%, respectively)
- Both Perometry and BIS were found to have strong positive (23 and 10 , respectively) and negative (0.2 and 0.3, respectively) likelihood ratios
- With Mild LE Perometry and BIS found to have superior thresholds to other methods of evaluation.
Adjustments to AROM measures

- At what position of shoulder flexion or abduction does cord appear
- Restrictions in Motion according to surgical intervention
- Is there neural tension if so treatment should include nerve glides
Adjustments to AROM Measures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>ROM Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Surgery without Reconstruction</td>
<td>No ROM Restrictions</td>
</tr>
<tr>
<td>Tissue Expander</td>
<td>Restrict to 90 for 2 weeks</td>
</tr>
<tr>
<td>Pedicle Flap TRAM</td>
<td>Restrict to 90 for 2 weeks</td>
</tr>
<tr>
<td>Free Flap TRAM (internal mammary artery)</td>
<td>Restrict to 90 for 2 weeks</td>
</tr>
<tr>
<td>Free Flap TRAM (Thoracodorsal Arter)</td>
<td>Restrict to 45 for 2 weeks</td>
</tr>
<tr>
<td>Myocutaneous Lat Flat</td>
<td>Restrict to 60 for 2 weeks</td>
</tr>
</tbody>
</table>

Progression of Exercises According to Surgical Intervention

- AROM initially within restricted ranges according to surgical intervention
- With any breast reconstruction lifting over 5 lbs. and jarring of the chest should be avoided for 6 weeks

Exercise the Evidence

  - Literature review of 26 articles which examined limb volume and DASH scores as they relate to various types of exercise
  - Safe and effective forms of exercises for those with BCRL include: aerobic exercise, resistance exercises, stretching, yoga, qigong, and pilates
  - In conclusion authors note these exercises appear safe and offer benefits of improving QOL, lowering BMI, decreased pain, decreased lymphatic swelling and improved mental health

Exercise the Evidence

  - Telomere length may be associated with increased risk of breast cancer and mortality
  - N= 151 breast cancer survivors who were assigned to 6 month diet and exercise program or usual care
  - Intervention group experienced 7% telomere lengthening and usual treatment experienced an 8% shortening (P=0.01)
Exercise the Evidence


- N= 69 – patients with Breast Cancer Related Lymphedema; exercise group (specific exercise regimen outlined in article) or traditional decongestive therapy 8 sessions (MLD, bandages, pneumatic compression), 4 weeks
- After 4 weeks greater increase in ROM and decreased pain in exercises group as compared to decongestive group (p<0.05)

Abdominal Breathing

YES  NO
Shoulder Flexion

Wall Slides

Child's Pose

Shoulder Rotation

External Rotation

Internal Rotation
Chest /Pec Stretch

Scapular Stabilization
Encouragement of Aerobic Exercises daily or 5 days/week

Radial Nerve Glide
Ulnar Nerve Glide

Median Nerve Glide
Sensation

- Gross sensory screen
- Areas of impaired sensation can get more specific
- 2 point discrimination
- Semmes Weinstein Monofilaments
Scar Assessment

- Pliability/Mobility
- Color
- Drains
- % Healed
- Hypertrophic
- Keloid
- Coloration Skin/Radiated areas or planned areas
- Vancouver Scar Scale if you want to be detailed (usually used with burns)
- Hypersensitivity

Scar Treatment

- Scar Mobilization – careful with lotion if in area of radiation treatment
  - Gentle with tissues with ongoing radiation
  - Radiation Fibrosis
- Gel Sheets
  - Mepiform
  - Scar Away
- Desensitization
  - Textures
Axillary Web Syndrome (AWS)

- Cord which extends from axilla to arm or chest wall
- Becomes apparent and protrudes more with abduction
- Exact etiology and pathology unclear but some progress made toward this
Axillary Web Syndrome

- What is it?
  - Ultrasound 18 Mhz of axilla with and without AWS; N=36, AWS = 17
    - Able to ID 12 of 17 cases of AWS mainly from signs of early lymphedema rather than a visualized cord
    - Unable to visualize cords that are consistent with vein thrombosis
    - Researchers surmise this tells us that the source of cording may not be venous but from localized lymphedema or abnormal tethered lymphatic vessels – further histopathological studies would be needed to actually confirm this

Sequela of AWS

- Decreased Shoulder Motion
- Cord in Axilla
- Decreased function
- Pain

  - N=36, Population = Women with Breast Cancer Surgery and Sentinel Lymph Node Dissection (SLND) or Axillary Lymph Node Dissection (ALND)
  - AWS risk factor for reduced function and decreased ROM
  - AWS associated with lower BMI and higher number of lymph nodes being excised
  - Prevalence of AWS in this study and population cumulatively was 50%
AWS Treatment What Works??

- Treatment typically includes = Manual Lymphatic Drainage (MLD), Myofascial release (MFR), A/PROM, and strengthening of shoulder girdle


- There is evidence to support that therapy improves arm pain, shoulder function and dissipates cording associated with AWS
- As described in the 4 articles examined in this review, cording was responsive in 6-8 weeks with 10-12 treatments and included lymphatic drainage, soft tissue mobilization, stretching and strengthening
- More RCT’s are necessary to support and clarify effective treatment for AWS


- RCT N=41; PT vs PT and MLD groups
- QOL, DASH and NRS scores improved in both groups significantly
- NRS and arm volume were lower significantly (P<0.05) in PT MLD group as compared to PT group and no incidence of Lymphedema (LE) in PT MLD group and 6 incidence in PT only group (P<0.05)
  - Note incidence of LE was with 3% or greater change in volume of limb
- Careful Here – more research about LE and AWS Associations lets check it
AWS and LE Associations??


- Cohort of **964** Breast cancer patients followed **10 years of follow up** allowing usual care and evaluating variables and their associations
- **No Association between AWS and LE** (OR=0.87, 95% CI 0.65 to 1.15, p=0.329)

Lymphedema Prevention and Screening
Lymphatic System


The lymphatic system is a transport system for water, proteins, cells, and fat in our body. There is something called the transport capacity of the lymphatic system which is the max lymph fluid which can be transported. The lymphatic load is the amount of this lymph fluid within the body that needs to be transported.

Lymphedema (LE)

- Definition = When the lymphatic load within the tissue is greater than the transport capacity of the lymphatic system.
Lymphedema

- **Primary Lymphedema** – due to a developmental insufficiency or dysplasia of the lymphatic system
- **Secondary Lymphedema** – injury or damage to the lymphatic system causes the insufficiency

Lymphedema

- **Stages**
  - **Stage 0** – subclinical or latency phase, can keep up with normal lymphatic load but additional stress on the system could progress them to true LE
  - **Stage 1** – reversible stage, pitting easily resolves, no fibrotic changes, edema may reduce overnight
  - **Stage 2** – pitting edema, fibrous tissue changes, positive stemmer sign
  - **Stage 3** – (Elephantiasis) edema becomes hardened, integrity of skin can be compromised, greater risk of recurrent infections, extreme size of limb and skin changes (papillomas, hyperkeratosis,).
Lymphedema

- By DocHealer - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=64120555

Risk Factors

Breast Cancer/ Treatment Related
- ALND
- Radiation
- Mastectomy
- Chemotherapy
- Greater # of nodes biopsied being positive
- Size of Tumor

Lifestyle and Post Op Activity Related
- BMI > 25 kg/m
- Blood Draws (controversy)
- Infections
- Air Travel (controversy)
- Extreme temperatures (controversy)
- Blood Pressure (controversy)
Risk Factors – The Evidence

  - BMI > 25 kg.m (p<0.01), removal of 11 or more lymph nodes (p< 0.01), and breast cancer surgery with radiation (p<0.01) associated with increased risk of BCRL

- Belmonte, R., Messaggii, Sartor, M., Ferrer, M., Pont, A., & Escalada, F. Prospective study on shoulder strength, shoulder range of motion, and lymphedema in breast cancer patients from pre-surgery to 5 years after ALND or SLND. *Support Care Cancer* (2018)26:3227-3287
  - 5 year follow up of Breast Ca patients with ALND and SLND
  - Outcomes Measures were = ROM as compared to uninvolved side, Strength measured by dynamometry as compared to uninvolved side, lymphedema assessed by volume measures (truncated cone formula with 7 established measurement sites), and Health Related Quality of Life (HRQL- measured by Short Form-36 Health Survey SF-36 and Functional Assessment of Cancer therapy for breast CA? FACT-B+4 questionnaires)
Risk Factors – The evidence

- Belmonte, R., Messaggii, Sartor, M., Ferrer, M., Pont, A., & Escalada, F. Prospective study on shoulder strength, shoulder range of motion, and lymphedema in breast cancer patients from pre-surgery to 5 years after ALND or SLND. Support Care Cancer (2018)26:3227-3287
  - Measurement intervals = pre surgery, one year post sx, 5 years post sx
  - DIFFERENCES = Results ALND significant loss of IR strength and increased limb volume/instances of lymphedema (33.3% vs. 3.4 %, p=<.0001 as compare to SLND group
  - SIMILARITIES = Both groups demonstrated loss of ER strength, shoulder motion and decreased HRQL in areas of physical and arm domains

  - Prospective cohort (450) study from 2009-2013 – assessment intervals pre operatively, 4, 6, 12, and 18 weeks post op.
    - Assessed Risk factors (lifestyle, demographic, breast cancer related, arm swelling related, and post op activities) post op activities were measured through a weekly diary in which they were asked to document related to travel/environmental, physical activity, injuries/trauma to the ipsilateral arm, and procedures on the affected side
Risk Factors - The evidence

  - Bioimpedance spectroscopy used to assess presence of BCRL
  - The risk for developing BCRL was greater in those that had more than 5 nodes removed as compared to those that had less than 5 (18.8% vs 3.3% rate)
  - Additionally for those individuals with >5 nodes removed those factors that presented increased risk for BCRL at 18 months were:
    - arm swelling at 6 mo.,
    - arm swelling at 12 mo.,
    - increased BMI,
    - radiotherapy,
    - taxane-based chemotherapy,
    - of post-operative activities only blood draws were noted to increase risk

  - Prospective Cohort of 327 patient who underwent bilateral breast cancer surgery
  - Risk assessment survey and assessment of lymphedema via weight adjusted volume change (WAC) formula at regular intervals:
    - Risk Assessment = injections, trauma to at risk arm, blood pressure readings and number of flights since previous measurement
Risk Factors – The Evidence

  - None of lifestyle risk factors was associated with increased WAC
  - BMI > 25 kg/m, ALND, adjuvant chemotherapy were significantly associated with increased in arm volume
  - Authors are careful to state that the traditional lifestyle precautions should not be abandoned and should remain the standard but given the results in this cohort this topics needs to be examined further through large scale clinical trials – to strive toward improving QOL for this population

  - Review of current literature related to breast cancer precautionary education/post operative behavioral risk factors
  - 31 original research articles reviewed
  - Those supporting the precautionary guidelines are of low evidence (levels 3-5) or had inconclusive results
  - There were only four level two studies which demonstrated significant associations these were =
    - Skin infections, previous infection or inflammation to ipsilateral arm
  - Authors note future research should revolve around stronger studies and perhaps a risk adjusted approach
Risk Factors – The evidence

  - Systematic review and meta analysis on current literature related to air travel – started with 55 studies which only 12 met criteria of review (review articles, conference abstract and editorials excluded – also only included most recent research where there was duplication in publication from one institution)
  - Pooled data revealed 2051 patients with a history of air travel revealed that ≤ 14.5% developed LE

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Risk Factors – The Evidence

  - Subsequent analysis of those studies with control arms (4)
    - 107 of 1189 (9%) with history of air travel developed LE
    - 204 of 2356 (8.7%) who did not fly developed LE
    - 141 of 1030 (13.7%) of those who developed LE then avoided air travel
  - Authors conclude air travel is not associate with the development of lymphedema
Risk Factors - Prevention/Evidence

  - RCT N = 45 Breast cancer patients with Axillary Lymph Node Intervention
  - Two groups compression garment group and control = both received standard therapy and the compression garment group work 15 - 21 mmHg sleeve to wear in the day
  - Limb Volume assessed circumferentially at one, three, six, nine and twelve months after surgery
  - Reduction in volume was greater in compression garment groups at three, six, nine and twelve months

Education for Prevention

- Giving the patient the power to make educated choices
- What is their risk at baseline related to their BMI and breast cancer treatment? – these risks are well supported in the literature
- Make this part of your education – explain the rationale behind the activity/lifestyle behavior precautions
- Risk Adjusted approach ????
Education for Prevention

- Exercise – Is linked to decreased risk of LE if performed properly take care to avoid injury
- Infections – take any signs of infection seriously and contact MD immediately
- Proper Skin and Nail Care – helps to avoid injuries and infections in skin
- Avoid Trauma to affected area – venipuncture, caring for abrasions properly
- Caution with Air Travel – potentially use compression garment ©

Education on Prevention

- Constriction – avoid wearing constrictive clothing or jewelry
- Avoidance of Extreme Temperatures ©
- Surgery on affected part of body – inform MD of your medical history
Education on Prevention

- HANDOUT AT NLN – you will note the point out the controversial topics in their handout as it relates to the evidence but there has been more evidence emerge since 2012 when this was updated


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Signs of Lymphedema

- My arm feels….. Heavy, swollen, boggy
  - The patient usually says something along these lines
- Loss of wrinkles on back of hand
- Pitting – teach them what this is
- Clothing fitting differently
- Does not have to present in entire arm – very different for each patient
- Key is care ASAP to limit extent of care
Treatment of Lymphedema

- Complete Decongestive Therapy
  - Gradiented Bandaging
  - Skin and Nail Care
  - Wound Care
  - Manual Lymphatic Drainage
  - Exercises
  - Transition to Home Management Program which can include a variety of garments

Gradiented Bandages
Manual Lymphatic Drainage

Compression Garments
Daytime
Compression Garments Nighttime

Certified Lymphedema Therapist

- Lymphedema Association of North America
  - Licensed practitioner = RN, OT/OTA, PT/PTA, MD, DO, DC, MT or ATC
  - 135 hours of training
  - 12 credit hours in H & P
  - Passing National Certification Exam

LANA website = https://www.clt-lana.org/index.html
https://doi.org/10.1155/2018/679869

- RCT, N=22 both groups 11; Experimental group = group sessions which the groups engaged in meaningful activities and individual OT consultations as needed
- Nice structure to program of not only activity but education related to prevention and exercise
- NO comparable time with clinicians in control group so difficult to say if this is from the education or the occupation based activities or a combination of both
Any Questions

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Summary and Q & A

Thank You!!!!!