COMPLETE DECONGESTIVE THERAPY (CDT) FOR LYMPHEDEMA

GUENTER KLOSE
MLD/CDT CERTIFIED INSTRUCTOR

KLOSE TRAINING & CONSULTING LLC
LYMPHEDEMA THERAPY CERTIFICATION COURSES
**What is Lymphedema?**

Lymphedema is an abnormal accumulation of protein-rich fluid in the interstitium which causes chronic inflammation and reactive fibrosis of the affected tissues.
Primary Lymphedema
Caused by dysplasia (imperfect development) of the lymph vascular system.

Secondary Lymphedema
Caused by filariasis, surgery and/or radiation for cancer, cancer (malignant lymphedema), trauma, infection, chronic venous insufficiency (CVI), obesity, lack of movement, self induced.
# Edema vs. Lymphedema

<table>
<thead>
<tr>
<th>Edema</th>
<th>Lymphedema</th>
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<tbody>
<tr>
<td><strong>Symptom</strong></td>
<td><strong>Disease (ICD-9 Code)</strong></td>
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<tr>
<td>Fluid accumulation in extra-cellular space</td>
<td>High-protein fluid accumulation $\rightarrow$ tissue proliferation (fibrosis)</td>
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<tr>
<td>No ↑ risk of infection</td>
<td>↑ Risk of infection (cellulitis)</td>
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<tr>
<td>After successful tx. of underlying disease, complete resolution of edema expected</td>
<td><strong>Chronic</strong></td>
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SIGNS & SYMPTOMS OF LYMPHEDEMA

- Swelling starts gradually and may be preceded by a feeling of heaviness or fullness in the affected area (subjective complaints)
- Clothing or a watchband may feel tighter than normal
- Pitting edema
DIAGNOSIS OF LYMPHEDEMA

“No standard degree of enlargement constitutes lymphedema.” (Cheville 2002)
ANATOMICAL LOCATIONS

- Extremities
  - Arm, Leg
    - (unilateral, bilateral)
- Head and neck
- Intestinal
- Genital
How should Lymphedema be Treated?

- Physiotherapy
- Surgery
- Pneumatic compression pumps
- Exercise and elevation
- Elastic sleeves (alone)
- Diuretics

“The gold standard treatment for lymphedema is Complete Decongestive Therapy (CDT).”

(Lawenda et al, 2009)
COMPLETE DECONGESTIVE THERAPY (CDT)

1. Skin and Nail Care
2. Manual Lymph Drainage (MLD)
3. Compression Bandaging
4. Exercise
5. Instructions in Self-Care
Brief History of CDT Pioneers

Alexander v. Winiwarter (1848-1917). Treated extremity lymphedema with a combination of massage, compression and exercise.

Emil Vodder, PhD, MT. Developed MLD in the 1930’s.

G. Keith Stillwell, MD, PhD. Treated lymphedema with a combination of massage, compression and exercise at the Mayo Clinic in the 1950’s.


Robert Lerner, MD, F.A.C.S. Established the first treatment center for CDT in 1990, in the U.S.
Meticulous Skin and Nail Care

Decreases the risk of infection (cellulitis/erysipelas). Patient must:

- keep skin clean & supple
- avoid injury (nicks, bites, burns, etc.)
- clean all injuries immediately
- call physician or go to the emergency room at first sign of infection
**Manual Lymph Drainage (MLD)**

- Increases lymph capillary uptake and lymph vessel transport.

- Redirects fluid from an affected (congested) area to an area with healthy lymphatic drainage.

- Promotes relaxation and has analgesic effect.
Lymph Collector Pulsation

Picture: Kubik
Manual Lymph Drainage (MLD)
COMPRESSION BANDAGING
(Short-Stretch Compression)

- Decreases edema/lymphedema
- Prevents reaccumulation of fluid
- Improves efficiency of muscle and joint pump
- Enables/facilitates wound healing

- Bandages are worn between MLD treatments until the affected limb is ready to be fitted with a compression garment (stocking or sleeve)
LYMPHEDEMA BANDAGING
EXERCISE AND MOVEMENT

Increases efficiency of the muscle and joint pumps (↑ venous & lymphatic return)

- Best performed with a compression bandage or compression garment in place
- Use active ROM, strengthening and/or stretching
- Include diaphragmatic breathing
- Consult a knowledgeable therapist (CLT) first
INSTRUCTIONS IN SELF-CARE

Essential for continued therapy success!

Patient must be as independent as possible in...

- skin & nail care
- infection prevention
- self-bandaging, donning and doffing of compression garments
- ADL’s and exercise
- performing self-MLD and following up with health care professional as needed
CDT IS A TWO-PHASE TREATMENT
The intensive phase leads to the self-care phase!
STAGES OF LYMPHEDEMA (FOELDI)

Stage 0  (Latency )
Stage 1  (Reversible)
Stage 2  (Spontaneously irreversible)
Stage 3  (Lymphostatic elephantiasis)
Stage 0 (Latency)

Patient is at risk for lymphedema.

- No visible and/or palpable swelling.
- Check for subjective complaints.
CDT IN STAGE 0

- Patient evaluation and risk assessment.
  - Consider Bioelectrical Impedance Analysis (BIA) to detect changes on the effected side.

- Patient education.
  - Infection prevention*
  - Risk reduction practices*
  - Exercise*
  - Weight management and nutrition

- Prophylactic sleeve for air travel.

* Position paper available at www.lymphnet.org
STAGE 1

- Visible swelling. (May fluctuate.)
- Mainly protein-rich fluid which responds to elevation.
- Check for subjective complaints.
CDT IN STAGE 1

- Patient evaluation.
- Patient education. (See Slide 21)
- Provide MLD as needed.
- Use compression bandaging and/or garment(s) as appropriate.
- Practice self-care protocol and determine the daytime and nighttime compression-wear schedule.
- Schedule follow-up visits.
STAGE 2

- Visible, chronic swelling.
- Protein-rich fluid and fibrosis.
- Elevation may provide some relief but will not be very effective.
CDT IN STAGE 2

- Patient evaluation.
- Patient education. (See Slide 21)
- Provide MLD daily for 3‒4 weeks, then decrease the frequency of visits as needed.
- Use compression bandaging until lymphedema is sufficiently reduced and ready to be fitted with a garment.
- Monitor ADL and exercise activity.
- Practice self-care protocol and determine the daytime and nighttime compression-wear schedule.
- Schedule follow-up visits.
STAGE 3
(LYMPHOSTATIC ELEPHANTIASIS)

- Visible, chronic swelling.
- Protein-rich fluid, fibrosis, skin changes and cellulitis.
- Elevation alone will not be effective.
CDT IN STAGE 3

- Patient evaluation.
- Patient education. (See Slide 21)
- Provide MLD daily for 4–6 weeks, then decrease the frequency of visits as needed.
- Use compression bandaging until lymphedema is sufficiently reduced and ready to be fitted with a garment.
- Monitor ADL and exercise activity.
- Practice self-care protocol and determine the daytime and nighttime compression-wear schedule.
- Schedule follow-up visits.
NEW-PATIENT INTAKE

- Patient completes insurance and intake forms.
- Therapist meets with patient for evaluation.
  - Reviews pt. intake form and medical history.
  - Gathers information about edema presentation and history.
  - Records measurements and takes photographs.
  - Educates pt. about edema/lymphedema, explains treatment options, and shares resources for information (NLN).
  - Prepares letter of medical necessity. Obtains MD signature and insurance approval.
NEW-PATIENT INTAKE (cont.)

- Therapist and patient agree on proposed number and frequency of treatments, set up appointments.
- Patient obtains compression bandaging materials.
- Patient receives CDT and is monitored for tolerance of MLD and bandaging. Progress is evaluated.
- Patient is instructed in self-care protocol and measured for compression garments, etc.
- Pt. is discharged with a plan for continued care (follow-up).
GOALS OF THERAPY

- Educate patient about lymphedema and infection prevention (risk reduction practices)
- Reduce limb volume and fibrosis (scar tissue)
- Restore functional mobility and ROM
- Improve cosmesis and psychosocial morbidity
- Improve QOL
- **Teach patients to be as independent as possible in the daily management of their lymphedema, based on their functional and psychological abilities!**
SECONDARY UE LYMPHEDEMA

Before CDT

6 months post-discharge
PRIMARY UE LYMPHEDEMA

Before CDT

After 5 weeks of CDT
Before and After CDT

Courtesy of Providence St. Peter Hospital, Lymphedema Clinic, Olympia, Washington, USA. Therapists are graduates of the Klose Training Lymphedema Certification Course.
PRIMARY LYMPHEDEMA (BLE)
OBESITY-ASSOCIATED LYMPHEDEMA

Before CDT
Pictures courtesy of Joan Glunk, NCMT, CLT

After CDT

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Volume Reduction after CDT

Right LE volume reduction: -16,030 ml (35.34 lbs)
Left LE volume reduction: -16,077 ml (35.44 lbs)
LLE PRIMARY LYMPHEDEMA

On patient intake 1996

1 Year Later

August 2010
COMPRESSION GARMENTS
ESSENTIAL for long-term management of lymphedema.
# COMPRESSION GARMENTS

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- **Circular knit**: Ideal for mild to moderate lymphedema or as a prophylactic garment. May migrate, causing a tourniquet effect.
- **Flat Knit**: Custom-made and designed for moderate to severe edema/lymphedema. Contours to shape of edematous limb.
PNEUMATIC COMPRESSION PUMPS

Conventional Pumps

- Controversial
- Possible benefit
- Significant risk of proximal and/or genital swelling
- Does NOT include the adjacent trunk quadrant
- Pressure is regulated by the patient; danger of excessive pressure (>100mmHg)
PNEUMATIC COMPRESSION PUMPS

Flexitouch System

- Simulates manual lymphatic drainage (MLD)
- Best as an adjunct to CDT or as part of self-care
- Covers the adjacent trunk quadrant
- Pressure is pre-set. Choice of “standard” and “intensive.” Typically limited to 40mmHg.
Patients who are inappropriate for compression pump treatment

Pictures courtesy of Jan Weiss, PT, DHS, CLT-LANA
Who is appropriate for pump treatment?

Patients with:

- lymphedema who have successfully completed Phase 1 of CDT and are now maintaining the treatment results on their own.
- distal, primary lymphedema or persistent secondary lymphedema. (Cancer, DVT, and proximal obstruction must be ruled out!)
- chronic venous insufficiency (CVI) edema.
“...may lead to repeated infections (cellulitis/lymphangitis), progressive elephantine trophic changes in the skin, sometimes crippling invalidism and on rare occasions, the development of a highly lethal angiosarcoma (Stewart-Treves syndrome).”

International Society of Lymphology Consensus Document, 2009
Lymphology 42 (2009) 51-60
KEY ASPECTS TO SUCCESSFUL MANAGEMENT OF LYMPHEDEMA

- Awareness and education
- Support of the medical community (accurate Dx.)
- Possible multi-disciplinary approach or in-patient (hospital-based) care
- Sufficient treatment time and repeat visits
- Adequate materials (bandages and garments)
- Motivated and compliant patient
- Therapists certified in lymphedema treatment
REFERENCES


4. The Diagnosis and Treatment of Peripheral Lymphedema; Consensus Document of the International Society of Lymphology Executive Committee. Lymphology 42, 2009


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