



Complex Decongestive Therapy (CDT) protocol

The first phase, or initial treatment phase, of CDT entails general skin care, manual lymphatic drainage, exercises aimed at improvement of mobility/range of motion and compression therapy using bandages.

The second phase, or maintenance phase, of CDT is aimed at maintenance of the achieved limb volume reduction through compression therapy with use of therapeutic elastic compression garment for the arm. Skincare, mobility exercises and MLD is continued in this phase if needed.

First phase

Three months CDT before randomization (if not yet treated conservatively for ≥ 3 months)

Manual lymphatic drainage (MLD)

This is the manual stretching and pressure application to the skin in slow, rhythmic and circular motions to stimulate the activity in the lymphatic vessels to increase lymphatic fluid drainage. The pressure applied is adjusted to the type of edema. The MLD techniques are designed to stimulate lymph flow from distal to proximal lymphatics. The goal of MLD is to re-route the flow of stagnated lymphatic fluid around obstructed or blocked areas into the more centrally located healthy lymphatic vessels. The lymphatic fluid eventually drains into the venous system.

Skin care

Cleansing of the skin with a pH-neutral product and application of a perfume-free, pH-neutral cream to the skin of the patient.

Pre-treatment of the neck-shoulder region:

Patient is in supine position: start at supraclavicular lymph nodes in direction of the terminus

- Continue towards the 'm. sternocleidomastoideus', bilaterally;
- Proceed towards axillary lymph nodes (in direction of 'lymfatici centralis, lateralis & subscapularis').

Treatment of the flank:

- Start at infra-clavicular from sternum distally towards axilla ("anastomosis hold");
- Proceed towards pectoralis muscle to sternum, medial and distally towards axilla;
- Move from breast distally towards flank;
- Followed by the intercostal space, proceed to parasternal space
- Contra-lateral side; start parasternal then intercostal;
- Apply "anastomosis grip" across sternum towards contralateral axilla.

Patient moves from supine position towards flank position with skin therapist seated behind her; position scapula in protraction

- Continue with drainage towards contralateral side;
- Continue from the trans-dorsal anastomosis towards the axilla of the contralateral side.

Treatment of the arm:

Patient moves back to supine position:



- Drainage of the upper-arm ventrally and dorsally towards supra- and sub-clavicular lymph nodes respectively;
- Continue at ‘cubitales profundi’ and ‘cubitales superficialis’;
- Drainage of the underarm, ventral side towards ‘cubitales profundi’ and dorsally towards ‘cubitale superficialis’;

Treatment of the hand:

- Apply “carpal tunnel hold” for hand drainage;
- Dorsal side hand drain towards dorsal side underarm;
- Palmar side hand towards ventral side underarm;
- Fingers and thumb towards dorsal side underarm;

Finish treatment at the neck.

NB. In case of fibrosis; apply “fibrosis hold”

Compression therapy; multi-layered bandaging

- Apply padding on hand, fingers and arm with cotton tricot, synthetic wool (10 cm width) and gauze bandaging (4 cm width). Use a pressure pad in case of edema. Apply tape to fixate padding.
- Apply 6 cm short stretch bandage. Start at wrist, hand, underarm.
- Apply 10 cm short stretch bandage. Start at wrist towards proximal, bandage clockwise.
- Apply 10 cm short stretch bandage. Start at wrist towards proximal, bandage anti-clockwise.
- Bandage is only removed during the next treatment session by skin therapist.

Frequency and duration of conservative treatment during the first 3 months:

- CDT phase 1.1: will continue for 6 weeks, 3 times a week, during 45 minutes (30 minutes MLD and 15 minutes of skincare, compression therapy and exercises).
- CDT phase 1.2: measure arms for therapeutic elastic compression garment (pressure class 2). In addition continue complex decongestive therapy as in phase 1: two times a week in week 7 and 8, once a week from week 9 till 12.

Second phase

After randomization

After randomization, or if participants already had CDT as described in phase 1, phase 2 applies. CDT will be continued at least once a month during the rest of the study period. CDT is chronic care for this chronic disease which most of the time is necessary an entire lifetime, therefore the start of follow-up and ending of the treatment is unclear.

Manual lymphatic drainage (MLD)

MLD continues or starts as described in phase 1.

Compression therapy:

At least pressure class 2 elastic compression garment for the arm. A separate glove may be used as complement. Two garment are recommended for hygienic reasons and preserve elasticity of the garment.