CLT-LANA
DETAILED CONTENT OUTLINE

I. ANATOMY AND PHYSIOLOGY 25%

A Comprehension of anatomy

- 1 Circulatory system (i.e., venous and arterial)
- 2 Lymphatic system
  - a Embryology
  - b Lymphangiogenesis
  - c Prelymphatic channels
  - d Lymphatic vessels
  - e Lymph nodes
  - f Lympho-venous anastomoses
  - g Watersheds and collateral anastomoses
  - h Superficial drainage pathways
    - 1 Head and neck
    - 2 Upper extremities
    - 3 Lower extremities
    - 4 Trunk
    - 5 Genital
  - i Deep drainage pathways (e.g., abdominal, pelvic, thoracic organs, limbs)
- 3 Integumentary system
- 4 Interstitium

B Comprehension of physiology

- 1 Function of the circulatory system including the lymphatic system
- 2 Microcirculation
  - a Starling's hypothesis and equilibrium (including updates)
  - b Safety factors that prevent edema
- 3 Lymph formation and transport

2. LYMPH VASCULAR DISORDERS (i.e., primary and secondary lymphedema) 15%

- **A** Differentiate etiology
- **B** Identify pathology and pathophysiology
- **C** Classify and stage lymph vascular disorders
- **D** Recognize sign and symptoms

3. OTHER DISORDERS (e.g., lipedema, lipolymphedema, phlebolymphedema, chronic venous insuffciency, myxedema) 10%

- **A** Differentiate etiology
- **B** Identify pathology and pathophysiology
- **C** Recognize signs and symptoms

4. PATIENT EVALUATION 20%

A Identify relevant elements of patient history

1 Edema and prior edema treatment
2 Family history
3 Other medical history
4 Medications/supplements/diet
5 Infections
6 Symptoms
7 Functional status (e.g., Activities of Daily Living (ADL))
8 Psycho-social

B Assess implications of patient history

C Recognize potential complications associated with lymphedema

1 Medical conditions associated with lymphedema (e.g., angiosarcoma, cellulitis, anasarca, lymphoceles, cancer recurrence)
2 Medical conditions that exclude treatment (e.g., acute congestive heart failure, untreated cellulitis, acute deep venous thrombosis)
3 Medical conditions that may limit treatment approach (e.g., compensated congestive heart failure, peripheral neuropathy, cognitive impairment)
4 Medical conditions that can affect lymphedema treatment outcomes (e.g., arthritis, hypertension, impaired mobility)

D Conduct physical examination

1 Weight and height
2 Appearance of involved limb(s) and adjacent areas (e.g., deepened skin folds, lobules, discoloration)
3 Clinical signs (e.g., tissue texture, Stemmer's sign)
4 Peripheral pulses
5 Range of Motion (ROM), muscle strength, posture, and gait

6 Sensation
7 Measurements (e.g., circumferential, volumetric, perometry)
8 Skin integrity (e.g., lymphorrhea, fungal infection)

E Comprehension of diagnostic tests (e.g., lymphscintigraphy, computerized tomography (CT), magnetic resonance imagining (MRI), venous Doppler examination, and ankle brachial index (ABI))

1 Purpose
2 Testing procedures

F Incorporate results of diagnostic tests in treatment planning

5. LYMPHEDEMA MANAGEMENT 30%

A Apply principles of complete decongestive therapy (CDT)

1 Manual lymphatic drainage (MLD)
   a Effects
   b Technique concepts (e.g., pressure, direction, sequence)
c Contraindications
2 Compression bandaging
   a Effects
   b Concepts (e.g., materials, gradient pressure, procedure)
   c Contraindications
3 Compression garments
   a Effects
   b Concepts (e.g., types and styles, fitting principles, grades of compression)
   c Contraindications
4 Decongestive exercises
   a Effects
   b Concepts (e.g., variations, approaches)
   c Contraindications
5 Skin care
6 Education
   a Activities of Daily Living (ADL) modifications
   b Compression bandaging
   c Compression garments (i.e., wear and care)
   d Exercise
   e Lymphatic drainage
   f Nutrition
   g Precautions and risk reduction
   h Self-assessment
   i Skin care
   j Signs and symptoms of infection
   k Weight management
   l Follow-up

B Recognize principles of adjunct treatments

1 Intermittent pneumatic compression (IPC)
2 Additional compression devices
3 Additional treatment options (e.g., laser, elastic taping, deep oscillation)

C Adapt treatment plan to specific populations and needs (e.g., pediatric, palliative care, wound care)

D Recognize factors that affect quality of life (e.g., psycho-social, adherence issues)

E Identify best practices (e.g., International Lymphoedema Framework (ILF), International Society of Lymphology (ISL), National Lymphedema Network (NLN))