THE UNIVERSITY OF ARIZONA
COLLEGE OF MEDICINE TUCSON
Treatment, Research & Education of Adipose Tissue Program

LIPEDEMA: AN EDUCATIONAL PROGRAM TO RECOGNIZE, DIAGNOSE AND TREAT PATIENTS

Continuing Medical Education | Pilot

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Objectives:

- Define and describe the etiology of subcutaneous adipose tissue (SAT) presentation in a nodular, fibrotic tissue fascia reticulum that is refractory to diuretics, weight loss, and directly associated with pain and hypermobility.
- Define and describe the definition and classification, with staging of Lipedema
- Define and describe the treatment options with pharmacological interventions for Lipedema, including processes to reduce inflammation, and improve lymphatic system through reduction of excess leakage from capillaries, veins and lymphatic vessels.
- Learn and access resources for Lipedema and other SAT disorders.
- Demonstrate commitment evidence-based considerations in the selection for diagnostic and therapeutic interventions for Lipedema.
- Appreciate the impact obesity has on a patient's quality of life, well-being, ability to work, and family.

Disclosure:

All Faculty, CME Planning Committee Members and the CME Office Reviewers have disclosed that they have no financial relationships with commercial interests that would constitute a conflict of interest concerning this CME activity.

Accreditation/Designation Statement:

The University of Arizona College of Medicine – Tucson is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The University of Arizona College of Medicine – Tucson designates this live activity for a maximum of 3.5 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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SYLLABUS

Course title: LIPEDEMA: An educational program to recognize, diagnosis and treat patients.
CME credits: 3.5 credits

Course description:
The Treatment, Research, Education of Adipose Tissue Program offers a half day, interactive lecture curriculum to describe, disseminate and replicate, the diagnosis and treatment of Lipedema. The TREAT Program curriculum aims to expand the clinical repertoire of healthcare providers into the assessment of fat tissue, and signs and symptoms of altered fat tissue. The primary goal of the TREAT Program is to promote recognition and treatment of people with fat disorders, also known as subcutaneous adipose tissue (SAT) disorders, especially the common SAT disorder, Lipedema. The curriculum builds on a healthcare provider's fund of knowledge in the areas of obesity, the lymphatic system and vascular disease. Specifically, healthcare providers will gain implementable medical knowledge, as well as history and physical diagnostic skills, in order to generate a SAT disorder differential diagnosis, while implementing treatment and management strategies for Lipedema.

Medical knowledge gap:
Physicians, fellows, residents as well as most healthcare providers, need to extend their medical acumen to include Lipedema in order to deliver relevant treatment. Evidentiary support for the misdiagnoses/underdiagnoses of Lipedema continues to create a medical gap of patients throughout the world, who seek one of ten specialists in the treatment of the disease. The TREAT Program presentation academic lecture series closes the gap of the physician knowledge that the disease exists. Lipedema is a condition characterized by swelling and enlargement of the lower limbs due to abnormal deposition of subcutaneous fat. Lipedema is an under-recognized condition, often misdiagnosed as lymphedema or dismissed as simple obesity. Additionally, lipedema appears to be a condition almost exclusively affecting females, presumably estrogen-requiring as it usually manifests at puberty. Lipedema is an entity distinct from obesity, but may be wrongly diagnosed as primary obesity, due to clinical overlap. The phenotype suggests a condition distinct from obesity and associated with pain, tenderness, and easy bruising in affected areas. (Herbst, 2016, 2012 PMID 20358611)

Educational need:
The TREAT Program provides the foundational elements needed to recognize, diagnose and treat Lipedema. Despite a seminal research paper in 1951, (Wold, Allen and Hines), as well as Lipedema first being described in 1940 at the Mayo clinic by Drs. Allen and Hines, the current medical community lacks the knowledge, skills and attitudes to appropriately diagnose and treat patients with Lipedema. Through education, the lack of specialists in lipedema would be substantially decreased and provides a fundamental shift from only a few specialists worldwide to access for physicians. Recent studies (Herbst et al, 2016) offer a glimpse in the life a person with lipedema and the medical necessity for treatment in order to improve quality of life.

As a result of completing this educational activity, participants with be able to:

Define and describe the etiology of subcutaneous adipose tissue (SAT) presentation in a nodular, fibrotic tissue fascia reticulum that is refractory to diuretics, weight loss, and directly associated with pain and hypermobility. (MK)

Define and describe the definition and classification, with staging of Lipedema. (MK)

Define and describe the treatment options with pharmacological interventions for Lipedema, including processes to reduce inflammation, and improve lymphatic system through reduction of excess leakage from capillaries, veins and lymphatic vessels. (MK)

Learn and access resources for Lipedema and other SAT disorders.

Demonstrate commitment to using risk-benefit, cost-benefit, and evidence-based considerations in the selection for diagnostic and therapeutic interventions for adipose tissue variations, particularly Lipedema. (PLI, P)

Appreciate the impact Lipedema as well as obesity has on a patient's quality of life, well-being, ability to work, and family. (P)

LEARNING OBJECTIVES:

KNOWLEDGE: Physicians, fellows and residents should be able to define and describe:

1. The etiology of subcutaneous adipose tissue SAT presentation in a nodular, fibrotic tissue fascia reticulum that is refractory to diuretics, weight loss, and directly associated with pain and hypermobility. (MK)
2. The definition and classification/staging of lipedema. (MK)
3. Treatment options with pharmacological interventions for lipedema, including processes to reduce inflammation, and improve lymphatic system through reduction of excess leakage from capillaries, veins and lymphatic vessels. (MK)
4. The anatomy of adipose tissue/cellular level, as well as, fascia composition. (MK)

SKILLS: Physicians, fellows, and residents should be able to demonstrate specific skills including, but not limited to:

1. History-taking skills: Ability to obtain and document the following:
   - Reviewing the patient's pertinent medical history. (PC, CS)
   - Assessing the risk factors for lipedema, including excess adipose tissue, nodularity/Common areas for pea-sized nodules are cubital, brachioradialis, upper thighs, medial knee. (PC, CS)
   - Reviewing the patient's activity level and diet. (PC, CS)
   - Obtaining an assessment of tobacco and alcohol use secondary to effects on vascular system. Specifically, noting if the patient is in the process of cessation. (PC, CS)*
   - Obtaining a family history focusing on weight related issues and comorbid illnesses associated with lipedema. (PC, CS)
   - Obtaining a focused review of systems including signs and symptoms of secondary causes of lipedema, including lymphedema. (PC, MK)
2. Physical exam skills: Physicians, fellows, and residents should be able to perform a physical exam to establish the diagnosis and severity of disease, including:
   - Review of vital signs at time encounter, including BP, HR, BMI. (PC)
   - Assessing the presence of multiple types of adipose tissue, based on body habitus, ratio measurements, i.e. disproportionate waist-to-hip circumference, dorsocervical fat pad, supraclavicular fat, axillary fullness or tenderness, mattress pattern thigh tissue, perivenous-adipose tissue (PVAT), fat overhanging knees, wrist/ankle cuff, fat around lateral/medial malleoli/achilles/dorsum of foot. stovepipe legs. (PC, CS)
   - Assessing pain on a scale 0-10. If 0, then roll your finger on a nodule in the fat to see if you can elicit pain.
   - Assessing the signs of vascular disease including hypertension, carotid bruits, telangiectasias, dilated veins/varicose veins, cherry angioma, edema, blood pressure, bruising, stemmer foot or hand and peripheral pulses. (PC)
   - Assessing for signs of endocrine abnormalities, including: striae, peripheral neuropathy, acanthosis nigricans, depressed tendon reflexes, and signs of dyslipidemia (e.g. xanthomas and xanthelasma). (PC)
   - Assessing for signs of tissue hypermobility, Beighton criteria (major and minor), piezogenic papules, thumb to radial bone, and ability to place hands flat to floor. (PC) ***TEMPLATE A: PHYSICAL EXAM TEMPLATE***
3. Differential diagnosis: Physicians, fellows, and residents should be able to generate a prioritized differential diagnosis recognizing specific history and physical exam findings that suggest a specific etiology of primary and secondary excess adipose tissue. (MK, PC)
   - Obesity (BMI) (MK, PC)
   - Excess adipose tissue
   - Idiopathic or vascular edema
   - Lymphedema
   - Ehlers Danlos Hypermobility Disorder
   - Lipedema
   - Other fat disorders (Dercum disease, Familial multiple lipomatosis, and Madelung disease.)

4. Laboratory incorporation: Physicians, fellows, and residents should be able to incorporate diagnostic and laboratory results, both prior to and after initiating treatment based on the differential diagnosis, including consideration of test cost and in accordance/collaboration with primary care physician and other sub-specialty physicians.

Laboratory and diagnostic tests should include, when appropriate:

- Serum glucose. (PC, MK)
- TSH. (PC, MK)
- Lipid profile. (PC, MK)
- HbA1c. (PC, MK)
- BUN/Cr. (PC, MK)
- 24-hour urinary cortisol (PC, MK)
- CRP, ESR
- ACE
- CH50
- ApoE
- MTHFR
- Homocysteine
- Selenium

5. Communication skills: Physicians, fellows, and residents should be able to:

- Communicate the diagnosis, treatment plan and subsequent follow-up to patients. (PC, CS)
- Elicit questions from the patient and her or his family about the management plan. (PC, CS)
- Adapt to the patient's daily regimen/lifestyle with emphasis on the patient's role in treatment and maximizing compliance. (PC, CS)

6. Treatment & Management skills: Physicians, fellows, and residents able to develop an appropriate evaluation and treatment plan for patients that includes:

- Overall treatment is distinct and requires a multipronged approach including, lifestyle treatment, standard treatment and non-standard treatment of lipedema.

Course format:

The format for the TREAT Program CME employs a multi-modal approach to introduce / re-introduce healthcare professionals to learn, visualize and implement medical knowledge, clinical skills and professional attitudes to improve treatment for patients with lipedema and ultimately, the patient's quality of life. Identifying the opportunities for such communities of learning, designing, launching and managing them is a complex task that draws upon a plethora of concepts, methods and skills. The challenge lies in being able to "look beyond" the paradigms of our perception and learning to recognize the patterns and dynamics of volatile contexts, in order to create "islands of stability", where organizations can draw their strength for sustainable development from.
The challenge lies in defining not an isolated and closed solution, but an open framework for reflection and value generation. Regardless of your work to-date, these concepts will allow you to transfer your knowledge and skills into a greater context and for more encompassing advantage within a complete area of interest.

What unites the approach however, is that they need to be based upon seeing how the participants in the context interact (both tangibly and intangibly), and then beginning to implement and leverage the knowledge from lecture and interaction.