Chronic Oedema Study Day - 1

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Aims & Objectives

• Understand the aetiology of oedema
• Able to identify types of chronic oedema
• Understand disease progression
• Conducting Holistic Assessment
• Identify management options
• Explore your own attitudes to chronic oedema and how these may influence your care
Practical Sessions

• Made to measure hosiery & applicators

• Multi layer chronic oedema bandaging

• Managing toe oedema
  – Toe caps
  – Toe bandaging
  – Stump bandaging
You arrive at work and find on the list of patients you’re seeing today a patient described as having large, wet, leaky legs. How do you feel about this forthcoming appointment?
Oedema

“Oedema is the presence of palpable swelling resulting from increased interstitial fluid in the tissues.” *BMJ 2009*
Acute oedema

• Oedema soft & pitting
• Temporary swelling, responds to elevation & exercise
• Associated with strains & sprains – inflammatory response leads to increased permeability of vessels
• Venous reflux & standing / sitting for long periods
• Without treatment it may become chronic
Acute oedema

Ankle & feet swelling

Pitting oedema
**Chronic oedema**

- Chronic oedema is an umbrella term for abnormal swelling of the leg, caused by an increase in fluid in the tissue;
  - that’s been present for at least 3 months
  - is not relieved by elevation or diuretics

- Most commonly due to problems with the venous and lymphatic systems

- Associated with skin & tissue changes

- Tendency to bacterial & fungal infections
Incidence

- 100,000 people suffer from chronic oedema at any time (UK)
- 5.4 per 1000 in those over 65 years
- 10.3 per 1000 in those over 85 years
- Equates to 1.33 per 1000 population (Moffatt 2006)

However, Lymphoedema is not recognised by many practitioners (Logan 1999, Sitzia et al 1998) & these may be underestimated figures.
The Circulation Systems

- **Arteries** - deliver oxygen & nutrient rich blood around the body
- They branch into tiny capillaries just one cell thick
- Fluid containing nutrients & oxygen filter out into the tissue spaces – interstitial fluid
- Cells in the tissue spaces absorb these and excrete waste and CO2
- Some filters back into venous system, larger molecules into lymphatics
- This maintains fluid balance in a normal limb
The Venous System

• For blood to be effectively taken against gravity back to the heart, the body needs valves in the veins to prevent the backflow of blood.

• Calf muscle pump assists venous return.
The Venous System

When the deep system has faulty valves (the valves do not close tightly allowing the blood to leak back down) changes can start to occur within the legs. This is known as venous insufficiency and results in venous hypertension.
The Lymphatic System

- A one way drainage system that returns fluid to the vascular system via a network of lymphatic vessels and lymph nodes.
- It comprises of a deep and a superficial system of vessels.
• The initial lymphatics are slightly larger than capillaries
• They absorb excess water & waste products, especially protein & fat, which are too large to enter the venules
• 90% of the interstitial fluid returns into the blood circulation via the venules
• 10% returns into the lymphatic system
Oedema

- Caused by an imbalance of the equilibrium between the hydrostatic forces that push fluid into the tissue spaces and the osmotic gradient that draws fluid into the intravascular space.

- If the balance of these mechanisms become overwhelmed or obstructed, fluid accumulation becomes evident as oedema.
Normal fluid distribution

90% - Veins
10% - Lymphatics
System overload

Oedema

Arteries

Lymphatics

Veins

Interstitial space
Chronic Oedema

- **Dependancy oedema**
  - Prolonged immobility or leg dependency

- **Lympho-venous oedema**
  - Venous insufficiency causing lymphatic overload

- **Lymphoedema**
  - Oedema caused by inadequate lymphatic drainage

- **Lipoedema**
  - If not treated early enough can tip into lymphoedema
Lympho-venous oedema

Venous hypertension leads to increased fluid in the tissue spaces. Over time leads to lymphatic overload and damage

**Causes:**
- DVT/post thrombotic syndrome
- Severe varicose veins
- Phlebitis
- Trauma (eg damage to veins)
- Chronic venous insufficiency
- Obesity
- Immobility
Lymphoedema

A chronic swelling of the limbs due to a failure of the lymph drainage system to remove the protein rich interstitial fluid.
• Protein rich oedema causes non-pitting tissue which becomes fibrotic

• Skin changes occur

• Can be managed / maintained – not cured
Primary Lymphoedema – congenital deficiencies

Secondary Lymphoedema e.g. as a result of damage to the lymphatics:

- Radiotherapy
- Surgery – orthopedic, removal of lymph nodes
- Extensive burns
- Tumour blockage
- Infection – Filariasis, cellulitis, insect bites
- Inflammatory conditions eg rheumatoid arthritis, dermatitis, eczema
- Skin grafts
- Venous disease
Lipoedema

- An inherited condition - occurs almost exclusively in women
- Gradually develop during puberty.
- Abnormal distribution of fat cells in the lower limbs – unknown aetiology
- Bi-lateral
- The fat cannot be exercised away.
- Does not respond / reduce with diet.
- Feet & toes generally unaffected, Typical ‘bracelet effect’ – negative stemmer sign
- Lipo-lymphoedema may develop due to long term impact on lymphatics
Disease Progression

• If left untreated chronic venous and lymphovenous disease will progress along a continuum of increased swelling and chronic inflammatory skin changes.

• It is essential that early venous and lymphovenous disease is recognised and appropriate treatment is initiated to slow and control its progression. (John Timmons, Janice Bianchi Wounds UK, 2008, Vol. 4, No 3)
Signs & Symptoms

• The fluid, red cells and protein present in the oedema cause certain skin changes

• Around 94% of people with venous & lympho-venous disease experience skin changes (Herrick et al, 2002)

• These skin changes produce signs and symptoms that help us to identify people at risk or suffering with chronic oedema, its severity and the level of intervention required
The Early Stages

Spider or thread veins
Web of fine superficial veins just visible through the skin

Bulging veins May only be visible when the patient is standing

Ankle flare Distension of the small veins on the medial aspect of the foot
Mild oedema with aching legs
Relieved overnight
Mild/moderate varicose veins

Venous dermatitis Also called varicose eczema. Itching caused by stagnant blood components leaked into the interstitial spaces

Hemosiderin staining
Brownish red skin discolouration caused by hemosiderin (red cell) deposits under the skin
Mid-term disease

Atrophy blanche  Painful absence of pigmentation caused by damage to microcirculation in the gaiter area

Severe varicose veins

Chronic oedema – The presence of oedema at any stage, if left unmanaged can accelerate disease progression

Ulceration  70% are venous

Hyperkeratosis  Increased thickening of the stratum corneum
Chronic Disease

Enhanced skin folds  Swollen limbs become over stretched and in severe cases the skin forms hanging folds

Papillomatosis  papules or nodules protrude from the skin giving a cobblestone appearance

Lymphorrhoea – ‘wet legs’
Protein rich fluid leaking from the superficial lymphatic system
Lipodermatosclerosis  Fibrin deposits cause prolonged inflammation resulting in induration around the ankle area giving a woody feel. In severe cases a ‘champagne bottle’ shape

Cellulitis

Lymphangiomas
Dilated lymphatic capillaries in the dermis which look like small blisters
Compression Therapy

Compression therapy can help to improve skin integrity, restore the limb to a normal shape, and enhance the patient’s quality of life (Osbourne, 2009)

Can be safely used on patients with an ABPI ≥ 0.8 to 1.2
Compression

• Hosiery
  – early stages
  – Maintenance – continuing care

• Bandaging
  – to decongest the limb prior to moving to maintenance with hosiery
  – With ulceration/lymphorrhoea
  – Distorted limb shape
• “Bandaging followed by hosiery more effective in maintaining limb volume reduction than hosiery alone” (Badger et al 2000)

• Inelastic multi-layer bandages for oedema reduction

• Compression garments for maintenance
Inelastic bandages effects

• Shift of fluid into non-compressed parts of the body
• Increased lymphatic re-absorption and stimulation of lymphatic transport
• Improved venous pump in patients with venous-lymphatic dysfunction
• Breakdown of fibro-sclerotic tissue (EWMA 2005)
Before
AFTER - 10 days of Actico bandaging
Before

5 months after
Contraindications

- Acute Cellulitis – commence as soon as comfortable
- Untreated cardiac failure – start slowly one limb at a time
- Acute deep venous thrombosis – commence once comfortable and anticoagulation is stable
- Superior vena cava obstruction
- Untreated genital oedema
- ABPI <0.8 or >1.2 specialist referral
- Advanced small vessel disease
Practical session

Please watch the following video
Toes

1) **Stump bandaging** – for weeping or very deformed toes

2) Toe garments – **Hadenham microfine toe cap**

- Off the peg – measure circumference at ball of foot
- Use under bandages
- Trim to fit – seams on outside
Toe Bandaging

Please watch the following video

If you think this is appropriate for your patient please contact Tissue Viability & we will assess, and access training for you.