Central Nursing Day 5

T.E.D.S and Intermittent Pneumatic Compression Devices

CNO 2010
Reviewed 2011
Learning Objectives

- Indications and contraindications for the use of TED’s
- Indication and contraindications for the use of IPC’s
- The nursing responsibility related to measurement, initiating therapy and patient assessment during the use of TED’s and IPC’s
- Location of LHSC resources
Thrombophlebitis:

- A thrombus (blood clot) develops on the wall of the vein and partially or completely prevents venous blood flow to the heart. Venous thrombosis is associated with the slow movement of blood through these vessels causing blood clotting (aggregation). Slow blood flow and inactivity due to age, surgery or medical conditions increase the likelihood of formation of a thrombus.
Virchow's Triad

All 3 elements of the Virchow Triad lead to a DVT.
Associated Factors

- Bed rest/ Inactivity
- Intravenous catheters
- Obesity
- MI
- Congestive Heart Failure
- Oral contraceptives
- Pregnancy
- Childbirth
- Surgery
- Altered coagulation states
Anti Embolism Stockings

T.E.D.S

- Applies a graduated pressure pattern of 18mmHg at the ankle, 14mmHg at the calf, 8mmHg at the popliteal, 10mmHg at the lower thigh and 8mmHg at the upper thigh

- It is important to measure the patient’s leg size to ensure proper pressure is being applied
Anti Embolism Stockings

- T.E.Ds reduce DVT’s by 50%
- T.E.Ds promote increased blood flow velocity in the legs by compressing the deep venous system
- T.E.Ds have proven to prevent the damaging effects of venous distension that occurs during surgery
Anti Embolism Stockings

- Doctors order needed
- Equipment Needed:
  - Tape Measure
  - T.E.Ds Stocking order chart
  - Package of T.E.D Stockings

Nursing is responsible for sizing, application and maintenance of T.E.D Stockings
Anti Embolism Stockings

Sizing:

- **Thigh Length:**
  - Measure upper thigh circumference at gluteal furrow
  - Measure calf circumference at greatest dimension
  - Measure length from gluteal furrow to base of heel
  - Consult the sizing chart
  - Standard T.E.D stocking fits a max. thigh circumference of 25 inches
  - Thigh circumference greater than 25 inches use T.E.D with belt
Anti Embolism Stockings

Apply T.E.D Stocking:
- Insert hand into stocking to heel pocket
- Grasp center of heel pocket and turn stocking inside out
- Position stocking over foot and heel.
- Pull a few inches of the stocking up around ankle and calf
- Continue pulling the stocking up the leg
- Smooth out wrinkles
- Toes should not be sticking out of stocking
- Remind the patient not to roll down or stick toes out of stocking
Anti Embolism Stockings

Contraindications:

- Not recommended for use with any local leg condition in which the stockings would interfere
- Severe peripheral arterial occlusive disease
- Massive edema or pulmonary edema from CHF
- Extreme deformity of the leg
Anti Embolism Stockings

Assessment:

- Assess skin integrity, pulse, colour and temperature of leg
- Ankle and heels inspected q8h
- Be aware of any changes in the patients weight (loss or gain–fluid balances etc) and change size of stocking accordingly. Document any abnormalities and consult the physician
- Need physician order to initiate or D/C stockings. Document reasoning
- Often ordered post operatively (see Pathways)
Anti Embolism Stockings

Removal of T.E.D Stockings:

- T.E.Ds to be removed at a minimum daily for AM care
- When any assessments are needed to be completed
- Skin care / AM / HS care

If patient is non-ambulatory may be off for no more then 30 minutes (if exceeds 30 minutes call MD)
Intermittent Pneumatic Compression Devices (IPC)

Indications for use:
- To increase venous blood flow for the non-ambulatory patient in order to prevent DVT’s and PE’s.
- Ordered by Physician
Intermittent Pneumatic Compression Devices (IPC)

Contraindications:

- Local leg condition (such as dermatitis, gangrene or recent skin graft)
- Severe peripheral arterial occlusion
- Massive edema of legs or pulmonary edema from CHF
- Inability to fit patient (i.e. Extreme deformity of leg)
- Suspected or pre-existing DVT or phlebitis
- Pulmonary embolism
Intermittent Pneumatic Compression Devices (IPC)

- The IPC device consists of a controller and either a single or a pair of non-reusable thigh or calf length sleeves. A single sleeve may be used without the controller alarming.
- The controller delivers air at predetermined pressures to uniformly inflate the calf and thigh chambers of the sleeves.
- Each cycle consists of 12 seconds of compression and 48 seconds of decompression.
  - Should be use in combination with anti-Embolitic stockings – as per physician order.
Intermittent Pneumatic Compression Devices (IPC)

Equipment:
- Measuring tape
- Disposable IPC sleeve
- Tubing assembly
- Intermittent Pneumatic Compression device

Measuring:
- Measure circumference of the upper thigh at the gluteal furrow to determine appropriate size of sleeve. Standard and Large sizes available.
  *A Bariatric Calf device is available if above sizes do not fit (up to 28” calf)
Initiating Therapy:

- Plug the pump in. The pump will go through a self-test routine and then remain in “standby” until required for use.
- Remove IPC garment from sealed bag, unfold one garment and position the inflatable bladder directly beneath the patient leg.
- With the tube pointing downwards, snugly wrap the garment around the patient’s calf/thigh and secure with fastener tabs.

**Must be able to fit 2 fingers between the garment and the leg to ensure garment is not too tight.**
Con’t Initiating Therapy:

- Connect the tubing set to the garments. Ensure a “click” is heard with each snap-lock connection.
- Check that the connection and garment type are confirmed correctly on the display.
- To start: press and hold the green RUN button on the pump. The green power indicators will go on and therapy will begin.
- To stop: press and hold the green RUN button a second time. The green power indicators will go out and therapy will stop.
Intermittent Pneumatic Compression Devices (IPC)

Removal:

- Remove for bathing and q shift to assess for redness or irritation of the skin, edema, and quality of pulses.
  - Checking for changes is important as skin breakdown, fluid shifts or constriction need to be addressed if occur

- Garments should be removed immediately and the physician notified if the patient experiences tingling, numbness or pain or a DVT is suspected. Document assessments in chart
Intermittent Pneumatic Compression Devices (IPC)

 Interruption / Discontinuation:

▪ Remove IPC sleeve for ambulation. They should not be removed for more than 30 minutes in non-ambulatory patients.
  ▪ There is potential for decreased blood flow, thus higher risk for developing a thrombus. If off longer than 30 min. and patient is at high risk for DVT – call the medical team to see if assessment is warranted before reapplying.

▪ IPC should be used continuously until the patient is ambulatory. Ambulatory is defined as the patient being able to ambulate independently.

▪ IPC are single use only, discard after physician order to discontinue
Resources

- LHSC Nursing Practice Manual: Procedure for “Mechanical Methods of Prophylaxis for Deep Vein Thrombosis (DVT), (Anti-Embolitic Stockings/ Intermittent Compression Device)”
- ARJO Canada Inc. Flowtron Universal