

Central venous catheterization workshop was conducted in RRMC & hospital on:

It included the PPT presentation of the following :

- Objectives
- Introduction
- Indications and Contraindications
- Complications
- Technique
- Basic principles
- Specifics by Site
- Basic materials

- **What is CENTRAL VENOUS PRESSURE....???**

- Clinical measure of right ventricular filling
- The zero reference point for venous pressures in the thorax is a point on the external thorax where the fourth intercostal space intersects the mid-axillary line (i.e., the line midway between the anterior and posterior axillary folds).
- This point (called the phlebostatic axis) corresponds to the position of the right and left atrium when the patient is in the supine position.

MEASUREMENT

- Calibrated transducer or water manometer

INDICATIONS

- Central venous pressure monitoring
- Volume resuscitation
- Cardiac arrest
- Lack of peripheral access
- Infusion of hyperalimentation
- Infusion of concentrated solutions
- Placement of transvenous pacemaker
- Cardiac catheterization, pulmonary angiography
- Hemodialysis

Relative Contraindications

- Bleeding disorders
- Anticoagulation or thrombolytic therapy
- Combative patients
- Distorted local anatomy
- Cellulitis, burns, severe dermatitis at site
- Vasculitis

Complications

- **Vascular**

- Air embolus
- Arterial puncture
- Arteriovenous fistula
- Hematoma
- Blood clot
- **Infectious**
 - Sepsis, cellulitis, osteomyelitis, septic arthritis
- **Miscellaneous**
 - Dysrhythmias
 - Catheter knotting or malposition
 - Nerve injury
 - Pneumothorax, hemothorax, hydrothorax, hemomediastinum
 - Bowel or bladder perforation

TECHNIQUE

- **Modified Seldinger technique**
 - Use introducing needle to locate vein
 - Wire is threaded through the needle
 - Needle is removed
 - Skin and vessel are dilated
 - Catheter is placed over the wire
 - Wire is removed
 - Catheter is secured in place
- Basic Principles
- Decide if the line is really necessary
- Know your anatomy
- Be familiar with your equipment
- Obtain optimal patient positioning and cooperation
- Take your time
- Use sterile technique
- Always have a hand on your wire
- Ask for help
- Always aspirate as you advance as you withdraw the needle slowly
- Always withdraw the needle to the level of the skin before redirecting the angle
- Obtain chest x-ray post line placement and review it
- Internal Jugular Approach
- **Positioning**
 - Right side preferred
 - Trendelenburg position
 - Head turned slightly away from side of venipuncture
- **Needle placement: Central approach**
 - Locate the triangle formed by the clavicle and the sternal and clavicular heads of the SCM muscle
 - Gently place three fingers of left hand on carotid artery
 - Place needle at 30 to 40 degrees to the skin, lateral to the carotid artery

- Aim toward the ipsilateral nipple under the medial border of the lateral head of the SCM muscle
- Vein should be 1-1.5 cm deep, avoid deep probing in the neck
- **Subclavian Approach**
- **Positioning**
 - Right side preferred
 - Supine position, head neutral, arm abducted
 - Trendelenburg (10-15 degrees)
 - Shoulders neutral with mild retraction
 - Right side preferred
- **Needle placement**
 - Junction of middle and medial thirds of clavicle
 - At the small tubercle in the medial deltopectoral groove
 - Needle should be parallel to skin
 - Aim towards the supraclavicular notch and just under the clavicle
- **Femoral Approach**
- **Positioning**
 - Supine
- **Needle placement**
 - Medial to femoral artery
 - Needle held at 45 degree angle
 - Skin insertion 2 cm below inguinal ligament
 - Aim toward umbilicus
- **Post-Catheter Placement**
- Aspirate blood from each port
- Flush with saline or sterile water
- Secure catheter with sutures
- Cover with sterile dressing (tega-derm)
- Obtain chest x-ray for IJ and SC lines
- **Write a procedure note**
- Procedure Note
- Name of procedure
- Indication for procedure
- Comment on consent, if applicable
- Describe what you did, including prep
- Comment on aspiration/flushing of ports
- How did patient tolerate procedure
- Any complications
- Ultrasound-Guided Central Venous Access
- Becoming standard of care
- Vein is compressible
- Vein is not always larger
- Vein is accessed under direct visualization
- Helpful in patients with difficult anatomy

After the presentation and pre workshop questionnaire delegates were shown the techniques on Mannequins.

This was followed by hands on training of the delegates.