**TAKING CARE OF PATIENT WITH CVC**

Central venous catheter (CVC) is a catheter inserted into the superior or inferior vena cava. The advantages compared to peripheral access are: administration of highly concentrated substances, administration of vesicants (such as some chemotherapy drugs), fast administration of medications or high volume of liquids, multiple drug administration (according to the availability of multiple lumens and compatibility of medications). Catheters can stay in place from 1 month to 2 years, depending on the used material, place and technique of insertion and occurrence of complications).

1. **TYPES OF CVC**
2. **By the time of use** – short term (most common in acute care, can be used up to 3 weeks), midterm (maximum 6 weeks) and long term (longer than 6 weeks, for example for parenteral, frequent administration of medications in chronic diseases, oncology treatments)
3. **By the number of lumens** – single lumen nor multiple lumen catheters
4. **By impregnation** – not impregnated (without antibacterial coating) or impregnated (with antibacterial coating – such as antibiotics, chlorhexidin, silver, etc.)
5. **By used material** – polyurethane, silicon, teflon, vialone or polyethylen
6. **Special catheters**

* Hickmann catheter – tunneled CVC for long term use
* PICC – inserted through a peripheral vein on arm, the tip of the catheter ends in superior ´vena cava or right atrium. Long term use for administration of chemotherapy, parenteral nutrition, infusion and antibiotic therapy.
* Hemodialysis catheter – tunneled and non-tunnelled catheters are used in patients who need hemodialysis. The catheter consists of one lumen which carries blood from the patient to the dialysis machine and another lumen which returns treated blood from the machine back to the patient.
* Swan-Ganz catheter – floating, balloon catheter used in cardiosurgery, in case of respiratory failure, shock conditions, myocardial infarction, etc. This catheter allows for hemodynamic monitoring.
* PORT – a special, tunneled, long term catheter. The catheter consists of two parts: a chamber implanted into a subcutaneous pocket (usually in the chest area) and a catheter which leads through subclavian vein into superior vena cava.

1. **ENTRY SITE**

* Vena cava superior – through vena subclavia, vena jugularis, v. basilica, v. cephalica or v. brachialis
* Vena cava inferior – through vena femoralis

1. **CARE OF PATIENT WITH CVC**

* We will describe care of a patient with short term catheter in hospital
* The catheter has to be covered by sterile dressing
* **Types of dressing:**
* Sterile gauze squares – used in the first hours after insertion due to the possible blood oozing
* Fabric adhesive dressing – appropriate for patients with increased perspiration
* Fabric adhesive dressing with transparent window – the window is over the insertion site, thus it allows to see and assess condition of the skin
* Transparent semipermeable film dressing – appropriate for patients with no secretions from the site and no increased perspiration. The dressing is made from porous material and can be impregnated by an antibacterial substance such as silver or chlorhexidin.

1. **Equipment**

* Face mask – both the nurse and the patient
* Sterile gloves
* Clean gloves
* Sterile instrument – clamps or tweezers
* Skin disinfectant
* Sterile swabs
* Sterile dressing
* Sterile gauze square
* Tape
* Marker
* Emesis basin

1. **PROCEDURE**

* Prepare sterile field with equipment
* Disinfect hands
* Put on face mask
* Put on clean gloves
* Remove old dressing – in the direction of arrows or in the direction of the catheter insertion
* Remove the remains of the tape from the skin
* Take off the gloves, repeat hand disinfection and put on sterile gloves
* Use sterile swabs (in the tweezers) with antiseptic solution to disinfect skin at insertion site
* Clean the site in circular motion starting at the center and moving outward, repeat three times
* If needed, remove remains of old
* Cover with new sterile dressing and mark the date
* Secure the lumens to the skin with tape
* Use sterile gauze if blood oozing is present
* Change tubing and needleless connections according to the hospital guidelines

**ASSESS THE SITE!**

* Check the site for signs of infection (redness, purulent secret, pain, edema)

1. **BLOOD DRAWING FROM CVC WITH VACUTAINER**

* Choose proper lumen of the catheter
* **Equipment:**
* Tube holder with luer-lock or connector
* 10 ml syringe or larger test tube to remove blood from the catheter (and discard)
* Test tubes according to orders
* Syringe with saline flush (at least 10 ml)
* Clean gloves
* Skin disinfection
* Emesis basin
* **Procedure:**
* Disinfect hands
* Put on the gloves
* Assemble needle holder and connector
* Disinfect needleless connection or entry site of the lumen
* Connect the vacutainer and release the clamp on the lumen
* Draw first portion of blood and discard
* Gradually connect test tubes and draw sufficient amount of blood
* Flush the tubing with saline solution using start – stop technique (repeat at least 4x)
* Close the clamp on the tubing
* Change the needleless connection according to the guidelines (prevention of thrombus formation)