Bwrdd Iechyd Prifysgol Aneurin Bevan University Health Board

Information for Patients Undergoing Insertion of Central Venous Access

Department of Radiology

Why do I need Venous Access?

"Intravenous" medicines are given through a vein. If the intravenous (IV) medicine is needed short-term whilst you are in hospital then a standard IV drip into a small vein in the arm will be adequate.

However, some IV medications are required over a longer period of time. While standard IV drips work well for short-term treatment, they cannot be used for more than a few days.

One way of delivering long term IV medication is by Central Venous Access.

What is Central Venous Access?

Central venous access is when a long thin and hollow plastic tube called a 'catheter' or 'line' is placed in a vein and this provides a way of giving you regular IV medication. This has the advantage of not needing further IV access sites or repeated injections.

The long catheter is placed into a vein in the arm, neck or front of the chest. The catheter extends from its entry point into a 'central vein' next to the heart. The larger central vein can tolerate the catheter line much better than a small vein. The catheter can stay there safely for weeks or months, sometimes more than a year.

What medications are given this way?

There are lots of types of IV medications which may need to be given repeatedly over a long period of time:-

- Intravenous Antibiotic treatment
- Chemotherapy or anti-cancer drugs
- Haemodialysis - a treatment for patients whose kidneys are not working properly

In what other ways is Central Venous Access useful?

- Drawing repeated blood samples
- Measuring blood pressure in a central vein. This can help manage how much fluid a patient needs
- In delivering large volumes of fluid or blood to patients quickly
- Treating patients in whom it may be technically difficult to use simple IV drips
- Central lines are much more stable and less likely to come out of the vein. This allows patients to be more active and receive IV medications at home
- Giving nutrition through the vein when food or supplements cannot be taken through the mouth, stomach or intestine
- Blood transfusions

What happens during the central venous line insertion?

A medicine called 'local anaesthetic' is used to temporarily numb the area of skin where the catheter enters the body. The area of entry depends on the type of catheter used and may be a vein in the arm, groin, neck or front of the chest.

The line is then advanced into the central vein next to the heart using a combination of ultrasound and x-rays.

The "outside" part of the line is then secured to the skin with a temporary suture (a stitch) and a dressing.

There are different types of catheters?

Yes. But only a few!

1. Peripherally-inserted central catheter - a PICC Line This is a line which enters one of the veins in the arm and travels to a central vein near the heart. Only a small length of the line is visible at the arm…..

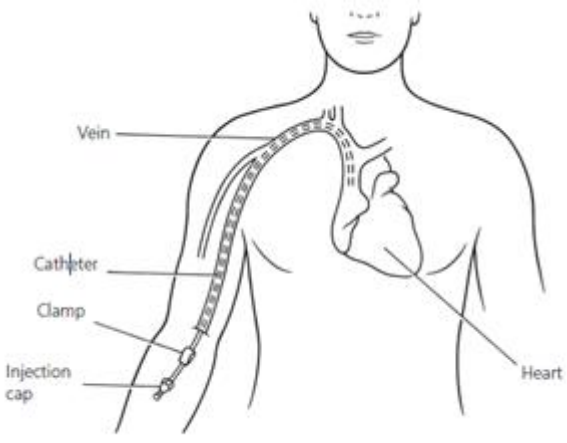
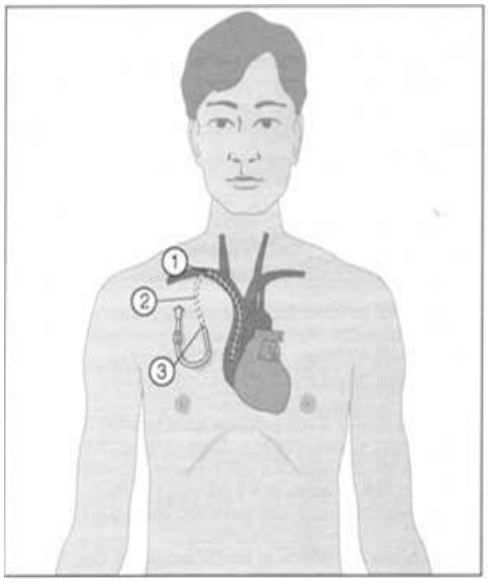


Diagram of a PICC

2. Tunnelled catheter. This is a catheter which is placed in a large vein in the neck. Instead of the catheter coming out of the skin at the neck, it is "tunnelled" under the skin on the chest so that it exits the skin some distance away from where it enters the vein. This means that there is less chance of infection. Examples include the Hickmann®andGroshong® lines



Once the skin is numb the catheter is placed into the vein in the arm or neck and then passed along into the central vein whilst using X-ray and Ultrasound images to guide the way.

The line is secured to the skin with either a special dressing or a suture.

Will I be awake during the procedure?

Yes. But we may give you some sedation which makes you a little sleepy depending on the type of catheter being placed.

Who performs the procedure and where?

A Radiologist – this is a doctor who is specially trained in using the X-ray equipment and ultrasound scanner to guide him or her during procedures such as this. Alternatively, a specially trained nurse or a surgeon may carry out the procedure.

The procedure is carried out in a specially designed room which has X-ray and Ultrasound scanning facilities as well as patient monitoring equipment.

Are there any risks?

Two types of risk are associated with vascular access devices: those occurring during or shortly after placement and delayed risks that occur simply because the device is in your body.

Following are some of the risks associated with placement of a vascular access device but you should note that all risks are small and this is generally considered a ***very safe procedure:****-*

- Any procedure that involves placement of a catheter inside a blood vessel carries certain risks. These risks include damage to the blood vessel, bruising or bleeding at the puncture site, and infection.

- Very rarely a patient may develop a condition called a pneumothorax, a collection of air in the chest that may cause one of the lungs to collapse. This may occur during placement of a catheter or port using a vein in the chest or neck, but not when an arm vein is used. The risk is lessened when catheter placement is guided by ultrasound or fluoroscopy. This is why these catheters should be placed by an interventional radiologist using appropriate imaging guidance during the procedure.

- The normal heart rhythm may be disturbed while the catheter is inserted, but this is usually only temporary. The problem is easily recognized during the procedure and eliminated by adjusting the catheter position.

- Rarely, the catheter will enter an artery rather than a vein. If this happens, the catheter will have to be removed. Most often the artery then heals by itself, but occasionally it has to be surgically repaired.

Delayed Risks:-

- Two types of delayed infection may develop: skin infection at the catheter or port insertion site or bloodstream infection. The risk of infection is higher for individuals who have low white blood cell counts.

- A hole or break in the catheter may lead to leakage of fluid. Breaks may be avoided by not always clamping the catheter in the same spot and by never using too much force when flushing it.

- The catheter may become accidentally dislodged. If the catheter is not secured to the skin appropriately, it may come out. If this happens, you should apply pressure to the incision site using a sterile dressing and call your doctor immediately.

- Any type of vascular access catheter may become obstructed by clotted blood or fibrin sheath. You can minimize the risk by carefully following instructions about flushing the catheter. Once a catheter occludes, or becomes closed off, it sometimes can be cleared by injecting medication but at other times must be removed or exchanged for a new catheter.

- If the vein in which the catheter lies becomes occluded (closed off) the arm, shoulder, neck or head may develop swelling. If this occurs, call your doctor immediately. The clot may be treated by a blood-thinning medication, but occasionally the catheter will have to be removed.

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British Society of Interventional Radiology (BSIR) and the Clinical Radiology Patients' Liaison Group (CRPLG) of the Royal College of Radiologists.

Radiology Info.org - a link from the BSIR website.