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Patient Information for Consent Inserting a Central Venous Catheter



What is a central venous catheter?

A central venous catheter (CVC) is a narrow plastic tube that is inserted in your superior vena cava (one of the large veins that carries blood to your heart). It can be used to measure your central venous pressure (the pressure of blood returning to your heart) and to give you medication or nutrition.

Your doctor has recommended inserting a CVC. However, it is your decision to have a CVC or not.

This document will give you information about the benefits and risks to help you to make an informed decision. If you have any questions that this document does not answer, ask your doctor or the healthcare team.



An epidural being given

What are the benefits of a CVC?

There are three main reasons why a CVC insertion is recommended.

- Measuring the pressure of blood returning to your heart – This information is particularly helpful during or after major surgery and will help your doctor to know how much fluid to give you.
- Giving medication – Your doctor will be able to give you medication through the CVC that may otherwise irritate smaller veins such as some antibiotics, chemotherapy and medication used

to raise blood pressure.

- Giving food into your bloodstream (parenteral nutrition – PN) – If you need to be fed and you cannot take food through your digestive system, the CVC can be used to feed you intravenously (directly into your vein).

Your doctor can also take blood samples using a CVC but a CVC would usually not be recommended for this reason alone.

What will happen if I decide not to have a CVC?

Your doctor will not be able to accurately find out your central venous pressure, making it difficult to give you the correct amount of fluid you need. You may be given too little or too much fluid, which can cause complications.

Sometimes your doctor can use a drip (small tube) in a smaller vein in your arm to give you medication or nutrition. However, the drip will need to be moved into another vein about every 2 days, which can stop or delay you having the medication you need.

Some medication can be given only by a CVC.

What does the procedure involve?

If you are female, the healthcare team may ask you to have a pregnancy test because x-rays are harmful to unborn babies. Sometimes the test does not show an early-stage pregnancy so let the healthcare team know if you could be pregnant.

The healthcare team will carry out a number of checks. Even though you may have been asked some of the questions before, it is important to answer carefully as the checks are carried out for your own safety. You can help by confirming to your doctor and the healthcare team your name and the procedure you are having.

You will be asked to lie on your back. You may be positioned head down, with your feet raised.

Your doctor will keep everything as clean as possible and will wear a theatre gown and operating gloves. They will use antiseptic to clean the area where the CVC will be inserted and the area will be covered with a sterile sheet. Your face may be partially covered, so let your doctor know if you are claustrophobic.

Your doctor will inject local anaesthetic into the area where they will insert the CVC. This stings for a moment but will make the area numb, allowing your doctor to put the CVC in with much less discomfort for you.

Your doctor will usually insert the CVC in one of the following smaller veins and then move it through to a larger one.

- Subclavian vein, just underneath your clavicle (collarbone).
- Internal jugular vein, in the front of your neck.
- Brachial vein, near your elbow.
- Femoral artery, near your groin.

Your doctor may use an ultrasound scan to help find the right vein. If your doctor uses your subclavian or internal jugular vein, they will tip the bed slightly head-down. This will make the vein get larger so it will be easier to insert the CVC.

Your doctor will insert the CVC using a needle and guidewire (thin flexible wire).

Once your doctor has inserted the needle into your vein, they will pass the guidewire through the needle. Your doctor will insert the CVC into your vein over the guidewire. Your doctor will remove the guidewire and needle and you will simply have a narrow plastic tube (the CVC) in your vein.

Your doctor will usually stitch the CVC in place and cover the area with a clear plastic dressing.

You will have an x-ray to check that the CVC is in the right position. If you are having an operation under a general anaesthetic, your doctor may insert the CVC while you are asleep.

What complications can happen?

The healthcare team will try to reduce the risk of complications.

Any numbers which relate to risk are from studies of people who have had this procedure. Your doctor may be able to tell you if the risk of a complication is higher or lower for you.

Some complications can be serious and can even cause death.

You should ask your doctor if there is anything you do not understand.

Complications during or soon after the procedure

- Bleeding after the procedure (risk: less than 1 in 20). This is easily treated by the doctor or a nurse simply pressing firmly for a few minutes where the CVC was inserted. Your doctor may need to insert the CVC into another vein.
- Pneumothorax, where air escapes into the space around your lung (risk: almost no risk if the brachial vein is used, less than 1 in 500 if the jugular vein is used, less than 2 in 100 if the subclavian vein is used). A pneumothorax is usually small and does not cause any problems. If it is large, it can cause your lung to collapse. The air will need to be sucked out using a needle (aspiration) or by inserting a tube in your chest (chest drain). If you suddenly become short of breath or have severe chest pain, let your doctor know straightaway.
- Failure of the procedure (risk: 1 in 20 if an ultrasound scan is used). Your doctor may try to

insert the CVC into another vein.

- Damage to surrounding structures such as blood vessels, your heart and lungs. You may need surgery to repair the damage.
- Change in heart rhythm, if the tip of the catheter is placed near your heart. Let your doctor know if you feel faint or unwell. The CVC will need to be moved or replaced.
- Air embolus, where air enters your bloodstream. This is rare.
- Nerve damage, usually causing temporary numbness or pain. This is rare.

Late complications

Blood clot in the CVC (risk: 1 in 10). This is not serious but the line may need to be replaced if the CVC cannot be unblocked.

- Blood clot in the vein (risk: less than 5 in 100). You may need treatment with blood-thinning medication.
- Infection of the bloodstream (risk: less than 2 in 100). If you already have an infection or get an infection of your bloodstream, your heart valves can be damaged or you can get seriously ill (risk: 1 in 100). The risk of infection increases if you have been ill for more than a few days, are having parenteral nutrition, or if you have diabetes. Let the healthcare team know if you get a high temperature or feel unwell.
- Infection where the CVC was inserted (risk: 1 in 10). This is usually easily treated with antibiotics. Let the healthcare team know if you get a high temperature or feel unwell, or if your wound becomes red and painful. The CVC may need to be removed.
- Narrowed vein, where the flow of blood to your heart is reduced. The risk is higher if your doctor performed the procedure using a larger cut. The problem usually gets better on its own as the body forms new veins around the narrowed area.
- Extravasation, where the contents of the CVC leak into surrounding tissues (risk: less than 1

in 100). If the fluid leaks around your heart or lungs, or into your abdominal cavity, it can cause problems. Let the healthcare team know if you notice any leaking from the CVC.

Removing the CVC

The CVC will stay in place for as long as you need it. If you need it for longer than a few days, the healthcare team will change the dressing.

When you no longer need the CVC, the healthcare team will remove the dressing and stitches and pull out the CVC. They may press firmly for a few minutes where the CVC was inserted, to reduce the risk of bruising.

Summary

Inserting a CVC is usually a safe and effective way of helping your doctor to give you the fluid, medication or nutrition that you need. However, complications can happen. You need to know about them to help you to make an informed decision about the procedure. Knowing about them will also help to detect and treat any problems early.

Keep this information document. Use it to help you if you need to talk to the healthcare team.

Some information, such as risk and complication statistics, is taken from global studies and/or databases. Please ask your surgeon or doctor for more information about the risks that are specific to you.

This document is intended for information purposes only and should not replace advice that your relevant healthcare team would give you.

