

Dialysis line insertion

Radiology

Introduction

The aim of this leaflet is to explain the procedure for patients undergoing a dialysis line insertion. This leaflet is not meant to replace informed discussion between you and your doctor, but can act as a starting point for outlining risks and benefits.

What are dialysis lines?

Dialysis lines are inserted into a large vein and used to allow haemodialysis – a medical procedure that uses a special machine (a dialysis machine) to filter waste products from the blood and to restore normal constituents to it. Dialysis lines have two channels that allow dialysis to occur from a dialysis machine. A dialysis line can be inserted into a blood vessel (vein), in the neck (jugular vein), upper chest (subclavian vein) or in the groin (femoral vein). The tip of the dialysis catheter is placed into a large central vein.

Are there different types of dialysis lines?

There are essentially two different types of dialysis lines; temporary or tunnelled:

- The temporary dialysis line is a solution for short-term dialysis. The lines can be inserted before each dialysis session or inserted and left in for a short period of time (6–8 weeks). Temporary lines are not tunnelled under the skin
- Permanent dialysis lines are tunnelled underneath the skin over the front of the chest, thigh or lower abdomen. This minimises the risk of infection and migration of the dialysis lines. They can be used as a long-term dialysis solution or for a defined period while waiting for a fistula to be formed and mature.

Who has made the decision?

The consultant renal physician in charge of your care has made the decision that a dialysis line needs to be inserted. The choice about which treatment is best for you will be made together with your doctor. This will be based on the risks and benefits of the treatment and your individual circumstances.

Consent

We must seek your consent for any procedure or treatment beforehand. Written consent will be obtained from yourself by a doctor to give permission to have the procedure done. Your doctor will explain the risks, benefits and alternatives where relevant before you sign the consent. A referral

The prevention of infection is a major priority in all healthcare and everyone has a part to play.

- Please decontaminate your hands frequently for 20 seconds using soap and water or alcohol gel if available
- If you have symptoms of diarrhoea and/or vomiting, cough or other respiratory symptoms, a temperature or any loss of taste or smell please do not visit the hospital or any other care facility and seek advice from 111
- Keep the environment clean and tidy
- Let's work together to keep infections out of our hospitals and care homes.

will be made and your appointment will be arranged. If you are unsure about any aspect of the procedure or treatment proposed, please do not hesitate to ask for more information.

What are the benefits of a line insertion?

- Enables haemodialysis to be undertaken.

What are the possible risks of a line insertion?

- Serious complications are uncommon, but a number have been described as below
- As an artery accompanies every vein, it is possible to puncture the artery inadvertently
- For jugular and subclavian lines, the lung is very close and it is possible to puncture the lung (pneumothorax). This is extremely uncommon and the risk is about 1%
- Tunnelled dialysis lines can migrate in the first two weeks while the dacron cuff on the line anchors it in place
- There is a small risk that an infection may occur due to insertion (within 14 days), but the greater risk is subsequent infections. These later infections can occur in two ways – in the tunnel track or within the line itself. Tunnel track infections can usually be treated successfully with antibiotics; unfortunately if your line becomes infected within, it may need to be removed. The risk is generally around 5–10% but can be up to 50%. To avoid infections you must try to keep the skin around the line dry, clean and covered. Do not allow anyone to use the line who does not take all the sterile/non touch precautions
- There are a number of complications that may occur after weeks to months following insertion. Venous thrombosis (blockage of the vein with clot) occurs in approximately 2– 8% of cases. If the arm or leg with the line in becomes swollen, you should contact your doctor as soon as possible
- Death as a result of the procedure is very rare
- Radiation: Ionising radiation may cause cancer many years or decades after the exposure. We are all at risk of developing cancer during our lifetime. 50% of the population is likely to develop one of the many forms of cancer at some stage during our lifetime. It has been estimated that undergoing this procedure may increase the chances of this happening to you to about 0.1 %. The requesting doctor and the doctor that will be performing your examination feel that the benefit of having the test or treatment outweighs the risk from the exposure to radiation. If you have further questions about the risk of exposure to radiation, please talk to your doctor during consent.

Please contact the X-ray Department as soon as you receive this appointment if you think you may be pregnant.

- **Contrast agent:** The “dye” used to show up the blood vessels can have side effects for a minority of patients: 3 in 100 of patients experience nausea and hot flushes. 4 in 10,000 may have more serious effects including breathing difficulties.

Are there any alternative treatments and what if I decide not to have it done?

The consultant in charge of your care will discuss the alternatives with you which may include insertion of a different line peripherally inserted central catheter line (PICC). They will also discuss the consequences of no treatment.

Where will the procedure take place?

The procedure will take place in the angiography suite; this is located within the radiology department. This is similar to an operating theatre in which specialised X-ray equipment has been installed.

If you are on a different ward, the angiography suite will liaise with your ward nurse and porters to arrange transport to your procedure.

Are you required to make any special preparations?

Insertion of a dialysis line is usually carried out as a day case procedure under local anaesthetic (a medication used to numb an area of the body to reduce pain).

- You can eat and drink as normal unless a doctor or nurse has specifically said otherwise
- If you have any allergies or have previously had a reaction to the dye (contrast agent), you must tell the radiology staff before you have the procedure.

If you are taking the following medication and the doctor has not discussed them during consent please contact the x-ray department when you receive this information:

- Acenocoumarol, Apixaban, Aspirin, Bivalirudin, Dabigatran, Dalteparin, Danaparoid, Dipyridamole, Edoxaban, Enoxoparin (clexane) Fondaparinux, Heparin, Phenindione, Tinzaparin, Warfarin.

What happens during insertion?

You will be asked get undressed and put on a hospital gown. A team of nurses and radiographers will assist the radiologist during the procedure. An interventional radiologist uses an ultrasound probe and x-rays to allow accurate insertion of the dialysis line through a minute incision. Local anaesthetic is injected at the line insertion site (this is most commonly the neck or the top of the leg). This may sting for a few seconds but then will go numb. The interventional radiologist places the line and, if it is a tunnelled line, after a further injection of local anaesthetic on the chest, tunnels the line so it is ready for use. When you leave the interventional radiology suite, the line will be fully functioning and ready for use. Occasionally there can be a narrowing within the veins. If this is identified, the interventional radiologist may need to stretch the vein with a balloon (venoplasty) to allow the safe placement of the dialysis line. This will be discussed with you before the procedure.

Will it hurt?

You may be able to feel the procedure but there should be no pain due to the local anaesthetic given at the access site. During the procedure, you may feel pressure when the line is being tunnelled. There will be a nurse next to the x-ray table to look after you. If you are in any pain, do not hesitate to tell the nurse. Pain relief may be given at the time of the procedure if appropriate. You should discuss this with the doctor doing your procedure on the day.

How long will it take?

Every patient is different, and it is not always easy to predict; however, expect to be in the radiology department for about an hour.

What happens afterwards?

You will be taken back to your ward or the day case unit. Nursing staff will carry out routine observations including pulse and blood pressure. You will be able to go home after a few hours of observation.

Going home advice

- There are no physical limitations
- The dialysis lines have a small dacron cuff which sits in the tunnelled portion (under the skin) and helps fix the catheter in place. It is wise to take great care over the first two weeks, until the cuff has anchored in
- The wound should be kept completely dry for the first five days and thereafter have showers rather than baths. When you have a shower you should keep the line covered

- Depending on your treatment plan, you may need to have the line flushed on a regular basis. This will usually be arranged by your dialysis team if required
- You should be able to drive unless you have been told otherwise. This will be confirmed at consent clinic. It is your own responsibility to drive if safe to do so. Information can be found on the DVLA website at: <https://www.gov.uk/guidance/general-information-assessing-fitness-to-drive>
- If the access site becomes infected or you have other concerns, call your GP or the renal dialysis unit
- It is unlikely that the puncture site will bleed, but if this happens and you cannot stem the bleeding, you should follow the following instructions:
 - Press firmly on the site with your fingers
 - Call NHS helpline on **111** or **999**, say you have a tunnelled line and the site is bleeding.

Trainees

A radiology trainee (qualified experienced doctors training in radiology) or occasionally a student, may be present during the examination. If you would prefer them not to attend, please let a member of radiology staff know.

How to contact us

If you have any personal access needs, require wheelchair access or wish to speak to a member of staff for further information, please contact the interventional radiology department on 01902 307999 ext. 6344 between 08:30 and 16:30 as the department cannot help with queries outside of these hours.

Angiography Suite/Interventional Radiology

Second floor Radiology A2
New Cross Hospital
Wolverhampton
West Midlands
WV10 0QP

Patient Advice and Liaison Service

New Cross Hospital
01902 695362
Email: rwh-tr.pals@nhs.net

New Cross Hospital Haemodialysis Unit

Monday to Saturday 7:00am until 7:00pm Telephone: 01902 695010

Out of hours – ask for on call renal nurse through switchboard.

Walsall Dialysis Unit

Alumwell Close
Walsall
Telephone: 01922 746876

Cannock Satellite Dialysis Unit

Brunswick Road
Cannock
Telephone: 01543 576480

Pond Lane Renal Unit

Pond Lane
Parkfields

Wolverhampton
Ext: 5455 / 5456 01902 695455

Further information

Further information about your examination is available from The British Society of Interventional Radiologists at:

https://www.rcr.ac.uk/sites/default/files/.../DIALYSIS_LINE_BSIR_PIL_FINAL.DOC

English

If you need information in another way like easy read or a different language please let us know.

If you need an interpreter or assistance please let us know.

Lithuanian

Jeigu norėtumėte, kad informacija jums būtų pateikta kitu būdu, pavyzdžiui, supaprastinta forma ar kita kalba, prašome mums apie tai pranešti.

Jeigu jums reikia vertėjo ar kitos pagalbos, prašome mums apie tai pranešti.

Polish

Jeżeli chcieliby Państwo otrzymać te informacje w innej postaci, na przykład w wersji łatwej do czytania lub w innym języku, prosimy powiedzieć nam o tym.

Prosimy poinformować nas również, jeżeli potrzebowaliby Państwo usługi tłumaczenia ustnego lub innej pomocy.

Punjabi

ਜੇ ਤੁਹਾਨੂੰ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਰੂਪ ਵਿਚ, ਜਿਵੇਂ ਪੜ੍ਹਨ ਵਿਚ ਆਸਾਨ ਰੂਪ ਜਾਂ ਕਿਸੇ ਦੂਜੀ ਭਾਸ਼ਾ ਵਿਚ, ਚਾਹੀਦੀ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

ਜੇ ਤੁਹਾਨੂੰ ਦੁਭਾਸ਼ੀਏ ਦੀ ਜਾਂ ਸਹਾਇਤਾ ਦੀ ਲੋੜ ਹੈ ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਸਾਨੂੰ ਦੱਸੋ।

Romanian

Dacă aveți nevoie de informații în alt format, ca de exemplu caractere ușor de citit sau altă limbă, vă rugăm să ne informați.

Dacă aveți nevoie de un interpret sau de asistență, vă rugăm să ne informați.

Traditional Chinese

如果您需要以其他方式了解信息，如易读或其他语种，请告诉我们。

如果您需要口译人员或帮助，请告诉我们。