

Ultrafiltration

A guide for patients undergoing ultrafiltration
for the treatment of heart failure



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What is heart failure?

The heart is a muscle that pumps blood around the body. If the heart muscle is damaged (perhaps after a heart attack or due to problems with the heart valves) the pump function of the heart is impaired. This can cause a build-up of fluid (and salt) in the body's tissues and the lungs. Patients often suffer with shortness of breath, tiredness, loss of appetite, weight gain, and swollen feet, legs or abdomen. These symptoms can make day to day life very difficult.

What is the treatment for heart failure?

The standard treatment for symptoms of heart failure is water tablets (diuretics). Sometimes, when water tablets are no longer effective, patients require admission to hospital for intravenous diuretics. Patients often have to stay in hospital for several days or weeks for fluid to be removed gradually. If the fluid builds up again, patients may have frequent readmissions to hospital. The body can sometimes become resistant to diuretics making fluid removal very difficult.

What is ultrafiltration?

Ultrafiltration can be thought of as a 'mechanical diuretic'. It is a treatment that is recommended for patients who have considerable fluid retention despite maximum doses of standard diuretics. It is a portable machine incorporating a special filter which is connected to a tube (cannula) in the arm or neck. A small amount of blood is drawn through the tube at a time, passed through the filter and the excess fluid is removed into a collection bag. The blood (minus the excess fluid) is returned to the body. This is a painless process and does not cause any blood loss from the circulation.

It is designed to remove excess fluid from the body more quickly than oral or intravenous diuretics when the body has become resistant to these methods. The hospital doctor decides how quickly

and how much fluid is to be removed and the machine is adjusted to the patient's individual requirement. The machine runs continuously (day and night) until the specified amount of fluid has been removed (or for up to 72 hours).

The overall effect is the fast and safe removal of large volumes of fluid over a short period of time. As long as patients continue to follow the advice of the Heart Failure team the effects of fluid removal may last for several months or possibly years. This means that readmissions to hospital for intravenous diuretics are reduced. The removal of excess fluid also means that quality of life is considerably improved.

What are the risks of ultrafiltration?

The tube (cannula) inserted into the neck or arm poses a small risk of bruising at the site. If the cannula is inserted in the neck, there is a very small chance (1%) that the lung can be pierced when it is inserted.

There is a risk of bleeding as the blood has to be thinned (using Heparin) throughout the duration of the treatment (this is to prevent clots forming in the filter and tubing). Regular blood tests will be taken to ensure that the blood is not too thin.

What will happen during admission for treatment?

Patients will be admitted to the Cardiac Care Unit where the nurses have received training in the use of the ultrafiltration system.

Patients will have an initial blood test and a cannula will be inserted into the hand or arm. The patient will be taken to the procedure lab for the insertion of the tube into the neck (this is performed with an injection of local anaesthetic). Patients will return to the Cardiac Care Unit for treatment to start.

The treatment regime will have been carefully planned by Dr Ellery or Dr Coombs (Consultant Cardiologists).

Patients will be closely monitored during the procedure. They may be connected to a cardiac monitor, and blood pressure will be recorded regularly, particularly at the start of treatment. The amount of fluid drunk and the urine passed will be recorded. Patients will need to stay on bed rest for the first few hours of treatment but may then be allowed to walk a short distance on the ward (for example to the bathroom and back).

How long will you need to be in hospital?

If treatment goes as planned patients need to be in hospital for approximately 4 or 5 days. The treatment can take up to 3 days and patients need to stay in hospital for observation for 24-48 hours after completion in order to monitor kidney function and adjust medication as necessary.

How will ultrafiltration make you feel?

Patients sometimes experience discomfort at the site where the tube is inserted into the neck - pain killers can be administered if they are needed. The area can sometimes be bruised for a few days after the tube is removed. Some people feel cold during the treatment - this can be more noticeable in patients who are of a smaller build.

Do you continue to take usual medications?

The hospital doctors will advise which tablets to take but patients are taken off their diuretics during treatment. These are restarted on completion of treatment often at a lower dose. It is useful to bring a list of usual medications and a labelled box of each tablet in case they are not stocked on the ward. Patients using insulin or inhalers should bring enough for the duration of their hospital stay.

What will you be able to do during treatment?

For the first four hours of treatment the patient will be sitting in bed. After that they should be able to sit in a chair, and possibly walk to and from the bathroom (this will be assessed on an individual basis and may depend on the site of the tube insertion, blood pressure recordings etc).

What should you bring?

Space at the bedside is limited. Patients should bring night clothes but can wear comfortable casual clothing during the day if they prefer as long as it is loose fitting to allow easy access to the arms and chest and neck. A small bag of toiletries is useful but towels are provided.

Meals are provided but some patients like to bring additional snacks (those with added salt should be avoided) or drinks according to their usual dietary needs.

Any property brought into hospital is the responsibility of the patient - the Trust does not accept responsibility for safe-keeping of property. Valuable items should therefore be left at home. Patients might like to have some loose change for newspapers, magazines etc. Small personal audio equipment is allowed but should be used with headphones to prevent disturbing other patients.

What are the visiting times?

The hospital has strict visiting times in ward areas. They are 3pm - 8pm. This is to allow the doctors and nurses to attend to patient care, to ensure protected mealtimes and protected rest period. Visitors in the Cardiac Care Unit are restricted to 2 people to the bedside at any time. This is to prevent a lot of noise and disturbance for those patients who are critically ill.

Visitors should not sit on patients beds - this is in line with the hospital infection control policy. Chairs are provided - please ask the nurses if assistance is required.

What are the ward telephone numbers?

The main hospital switchboard is 01273 696955, then ask for extension 64484 or 64033. The direct number to the ward is 01273 664484. Mobile telephones are permitted but should be used very discreetly without disturbing other patients. Please note: patients are not permitted to plug any of their own electrical equipment (such as phone chargers) into the hospital electrical supply unless it has been checked and approved by Medical Electronics.

Is there anything you should or shouldn't do following treatment?

Patients should not plan to do anything strenuous for 48 hours after discharge. After that, patients can return to their previous level of activity. For those patients who work, ultrafiltration should not stop them from returning to work after 48 hours (this will be assessed on an individual basis).

What is the on-going care after discharge from hospital?

Patients will be seen early after discharge after treatment and will then continue to be seen regularly by the Heart Failure doctors and nurses in their usual out-patient clinics.

Patients should continue to adhere to their prescribed fluid and salt restrictions to prevent re-accumulation of excess fluid. The Heart Failure or Cardiac Care nurses can give additional lifestyle advice.

Where can you get more information?

Patients can discuss their treatment with their Cardiologist or Heart Failure Nurse.

If you have any comments about your treatment, or about the information in this leaflet please tell the doctors or nurses involved in your care. We hope to provide an excellent service and patient feedback is very important to us.

Written May 2012, revised Feb 2019 by Joanna McQueen

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Disclaimer

The information in this leaflet is for guidance purposes only and is in no way intended to replace professional clinical advice by a qualified practitioner.

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