Renal and transplant services

Your pancreas transplant

Information for patients, relatives and carers

Introduction

What is pancreas transplantation?

A pancreas transplant is a major surgical procedure to place a healthy pancreas from a deceased donor into a person whose pancreas no longer functions properly.

Your pancreas is an organ that lies behind the lower part of your stomach (fig 1). One of its main functions is to make insulin, a hormone that regulates the absorption of sugar (glucose) into your cells.

If your pancreas does not make enough insulin or your body is unable to make use of the appropriate amount of insulin made by your pancreas, blood sugar levels can rise to unhealthy levels, resulting in diabetes.

What does a pancreas transplant do?

A functioning pancreas transplant responds to your blood glucose levels by producing an appropriate level of insulin to maintain blood glucose levels within normal range. This means you no longer need to inject yourself with insulin on a day-to-day basis. However, the main advantage to you is an increased life expectancy and longer kidney transplant function.

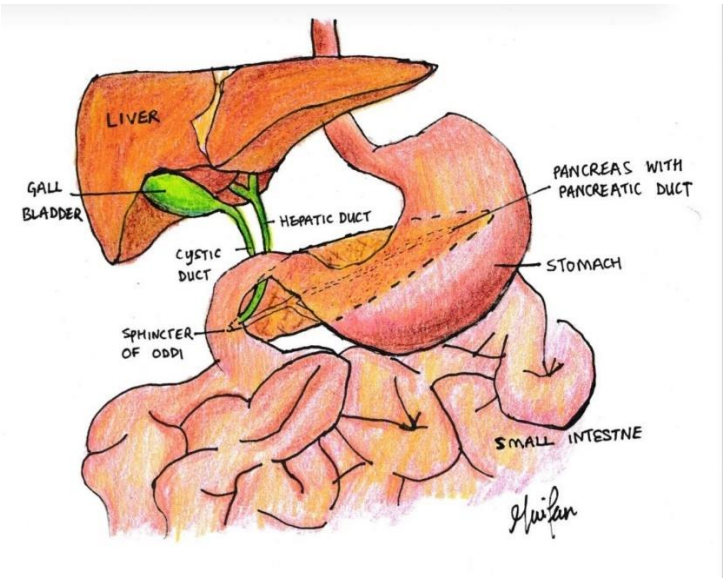

Fig 1: Anatomical position of your pancreas.

Who can have a pancreas transplant?

To have a pancreas transplant you must:

- have insulin-treated diabetes
- be experiencing major complications from your diabetes
- be well enough to cope with major surgery

What are the benefits of having a pancreas transplant?

- a pancreas transplant leads to a longer and better quality of life for most people who are able to have one
- your blood sugar should be better controlled and you're unlikely to need insulin
- damage caused by your diabetes should slow down
- if you are planning a family, it is possible to try for a baby once you have recovered

What types of pancreas transplant do we perform?

We perform three different types of pancreas transplant at Imperial College Healthcare:

Simultaneous pancreas kidney transplant (SPK)
A combined pancreas and kidney transplantation. This is the most common type of pancreas transplant, suitable for patients with insulin-treated diabetes and kidney failure.

Pancreas-after kidney transplant (PAK)
If you already have a functioning kidney transplant, and are considered to benefit from a pancreas transplant, you will receive the pancreas transplant as a separate operation (PAK).

Pancreas transplant alone (PTA)
If you suffer from frequent hypoglycaemic events or life-threating complication due to your inability to respond to low blood sugars (hypoglycaemia), you will receive a pancreas transplant alone (PTA).

Other alternatives to pancreas transplant include:

Insulin and kidney transplant
Remaining on insulin and considering a kidney transplant can lead to better renal functions but dependence on insulin.

Islet cell transplant and kidney transplant
Islet cells are cells in the pancreas which produce insulin. Islet cells can be transplanted which when start functioning, can lead to better insulin production and thus diabetic control. This can be considered along with a kidney transplant.

Where do donor pancreases come from?

Although it is possible for a living donor to donate part of a pancreas, all pancreas transplants in the United Kingdom are obtained from deceased (dead) donors.

How long will I have to wait for a transplant?

Once you are assessed as being suitable for a pancreas transplant, you will join the national waiting list. The waiting time for a transplant depends on your blood group, tissue type and antibodies in your blood. The average wait for a pancreas transplant is 1 year.

If you feel the organ being offered to you has an unacceptably high chance of failure or other major concerns, you can decline the offer and wait for another organ. If you are willing to accept a higher risk pancreas such as from donors with significant diseases or infections, it is possible to have a shorter waiting time. Sometimes, you may be called in for transplant, which may not go ahead due to donor organ quality. Our transplant team can also decline the offer if they feel the organ is not suitable for you.

Further information can be found on the NHS Blood and Transplant (nhsbt.nhs.uk) website: [How long is the wait for a pancreas? - Organ transplantation]

What happens while I am on the waiting list?

Make sure the transplant team knows how to reach you at all times.

Once a donor pancreas becomes available, it must be transplanted as soon as possible, ideally within 12 hours. You should keep a packed hospital bag handy and have arrangements in place for transportation to the transplant centre in advance.

What happens when I am called in?

When an organ will be available for you, a renal doctor will call you. You will be asked to come to the DeWardener ward at the Hammersmith Hospital and you will be advised about eating and drinking in preparation for the operation.

Time is extremely important in transplantation to maintain the vitality of the organs. I**t is vital that you remain contactable at all times including during the night which is when many organs become available. When you receive the call, you must arrive as soon as possible and by your own means of transport if possible.**

If you cannot be contacted in a limited time, the organs may be offered to another patient. Unfortunately, it is also possible that even once you have been called in, the transplant operation may not go ahead for a variety of reasons, usually for issues related to the donor or the pancreas itself. The transplant team will keep you constantly informed.

What is the surgery like?

- pancreas transplant surgery by itself takes 2 to 4 hours
- simultaneous pancreas and kidney (SPK) transplant surgery takes 6 to 8 hours or more
- you will be put to sleep under a general anaesthetic while the transplant takes place

Most of the time, a donor pancreas is placed within your tummy cavity (peritoneal cavity). Your own pancreas does not need to be removed. The donor pancreas is transplanted with a short piece of donor small intestine (the duodenum). This is joined to your small intestine or sometimes your bladder. The blood vessels near the back of your tummy will be found, and

joins will be made between the blood vessels of the pancreas and your blood vessels. Once the blood vessels have been stitched together, blood will be allowed to flow through the pancreas. If the surgeon is happy with the blood flow, they will then make a join between the piece of intestine attached to the donated pancreas, and your intestine.

What will happen after the operation?

After the surgery, which is carried out at Hammersmith Hospital in the main theatres, you will be moved in the recovery area where you will be monitored for one to two hours. While you are in the recovery area you will have an ultrasound scan. The scan is needed to assess the blood flow in and out of the new organ(s).

When the transplant and renal teams are happy that your condition is stable, you will be transferred to the Intensive Treatment Unit (ITU). Once you are fully conscious from the general anaesthesia, you will be aware that you are attached to several tubes, monitors and machines.

They may include:

- **the PCA:** which is a machine that delivers painkillers through a tube into your body and is controlled using a handheld device that you can control. It will be removed gradually in first few days
- **an oxygen mask:** to help your breathing for 24 to 48 hours after your surgery
- **cannulas:** tubes that provide nutrients (the goodness of food) and fluid into your veins
- **NG (nasal gastric) tube:** a plastic tube that goes through your nose into your stomach to keep your stomach empty until normal bowel function returns and to protect the area where your new pancreas is attached to your small intestine
- **drains:** plastic tubes that are placed to remove blood and other fluid from the operation site
- **catheter:** a tube in your bladder that allows you to urinate without going to the toilet (urinary catheter) and monitor your urine output in case of a simultaneous kidney transplant
- **stent:** an internal tube between the bladder and your transplant kidney (in simultaneous pancreas kidney transplantation) called a ‘stent’ to protect the joining with your urinary bladder – this will need to be removed by a short procedure 3 weeks after the transplant. You will be asked to come to the Pam Sassoa Unit (PIU) at the Hammersmith Hospital to have the stent removed under local anaesthetic as a day case and you should be able to go home the same day.

During your hospital stay you will receive a further repeat ultrasound scans and/or CT scans of your new pancreas. These tests look specifically at the blood flow of your new pancreas (and kidney, if required) and will show up any narrowing or blockages of the blood vessels or abnormal fluid or blood collection around the transplanted organs.

How long I will be in hospital?

The average post-transplant hospital stay is about two weeks. This varies depending on how you are feeling and if additional tests or interventional procedures are necessary.

Do I need follow up appointments?

Close monitoring with follow up appointments is very important. Your transplant team will develop a check-up schedule that is right for you. But be prepared for the first few weeks to come back to the clinic two or three times per week.

Getting back to activities

It mainly depends on functioning of the transplanted organ and your body getting used to new medications.

- if you were working before the transplant, you can usually go back to work between 10 to 12 weeks after the operation, for manual occupations it may take longer
- you can normally drive after 4-weeks
- most patients can travel abroad after 12-months
- you're encouraged to do moderate exercise at home and to continue this with a gradual increase over the following weeks

What are the complications of the operation?

Pancreas transplant surgery carries a risk of complications which can occur during and/or after the operation. They may be some of the following:

Bleeding

As with all operations, there is a risk of bleeding. Out of 100 patients, between 30 to 50 will need a blood transfusion within the first week of surgery. Patients who take blood-thinning medications (for example, warfarin) have a higher risk of bleeding.

Infection

Between 10 and 20 patients out of 100 will require antibiotics for an infection within the first week of pancreas transplant surgery. Infections are common after a pancreas transplant, in part because you will be given immune suppressing medicines. These medicines reduce the risks of you rejecting the donated pancreas, but they will also lower your immune system's ability to fight infections.

Thrombosis

There is a risk of a blood clot forming in the blood vessels of the transplant. This is called thrombosis and can occur in 10 per cent of patients (10 in 100). This is most likely during the first week after the transplant and may result in the organ being removed. You will be monitored very closely for signs of this while you are in hospital and when you return home. You will have regular blood samples taken to perform special clotting tests to measure how effectively your blood is clotting, to balance the risk of blood clot forming and the risk of bleeding.

Further operations

The reasons include non-functioning transplant, blockage of intestine, fluid build-up around pancreas, wound infections, bleeding, other injured organs.

Rejection of transplanted Pancreas (or kidney)

Rejection happens in between 10 to 15 in every 100 patients during the first year after a transplant. Rejection is when your body's immune system starts to 'attack' your transplanted pancreas (or kidney). This is often treatable. Rejection can be diagnosed from certain blood tests to look for antibodies, CT imaging and studying a tissue sample from the transplanted pancreas. If it is confirmed, treatment depends on the type of rejection which include steroids, immunoglobulins or increasing the dose of immunosuppression.

Other complications

The general risks are similar to those following any type of major abdominal surgery, including wound infection, infection inside the abdomen, cardiac (heart) complications, deep vein thrombosis (blood clots in the legs) and pulmonary embolism (blood clots which move to the lungs).

Long term risks include infections, rejection of transplanted pancreas, hernia of abdominal wall, weakness of arteries of transplanted pancreas and complications from long term immunosuppressive medications.

What drugs do I need to take?

To protect your transplanted pancreas (and kidney, if also transplanted) from rejection by your immune system, you will need to take powerful medications called immunosuppression drugs.

The dose of the immunosuppression medications will be progressively reduced following your transplant, but if you were to stop taking the immunosuppressive medications, your new pancreas (and kidney, if transplanted) would stop working and would be rejected by your body.

After your operation, you will receive treatment with a drug called alemtuzumab (Campath). This drug reduces the ability of your immune system to reject your transplanted organs. This is then followed by long-term drug therapy, most commonly with a combination of two different types of tablet medications, Tacrolimus (Adoport) and Mycophenolate mofetil (MMF).

Complications of immunosuppression

In the early days following a transplant, the surgery and the immunosuppression drugs make your body more vulnerable to chest, urinary and other types of infections. You will be given antibiotics and anti-viral drugs to help prevent and treat any active infection.

Long-term immunosuppression medication can also increase the risk of you developing some forms of cancer, relating to your skin or lymph glands (lymphoma). We will monitor you closely for any signs of these cancers after your transplant, as they can usually be effectively treated if found early. We will also give you advice about skin care protection, including sun protection. Steroids are not routinely required, however may be indicated if any concerns on rejection or drug tolerance.

What are the benefits of having a pancreas transplant?

- a pancreas transplant leads to a longer, better quality of life for most people who are able to have one

- on a long term it can also reduce the risk of cardiovascular mortality and potential reversal of reversible end organ damage. End organ damage worsens in the initial 6 to 12 months following transplant, following which it improves
- your blood sugar should be better controlled and you're unlikely to need insulin
- damage caused by your diabetes should slow down
- if you are planning a family, it is possible to try for a baby once you have recovered
- if it is a simultaneous pancreas and kidney transplant, a functioning kidney can also be expected. This can mean independence from insulin and dialysis

What happens to diabetes after pancreas?

A pancreas transplant can improve insulin production and restore normal blood glucose levels. Sometimes you may need to remain on insulin for a period of time until the transplant starts working. Reduction in the dose of insulin is also possible in a partially functioning transplant until full function of the transplanted pancreas resumes. If the transplanted pancreas fails to function, you may have to remain on insulin. Occasionally you may experience episodes of low blood glucose (hypoglycaemia) after transplant in which case the transplant team should be informed.

What happens if the pancreas transplant fails?

If your new pancreas fails, you can resume insulin treatments and consider a second transplant. This decision will depend on your current health, your ability to withstand surgery and your expectations for maintaining a certain quality of life.

You can read more about pancreas transplantation on the NHS Blood and Transplant (nhsbt.nhs.uk) website: - Pancreas - Organ transplantation

Contact us

- Renal Assessment Unit (RAU) – 020 3313 6604
- De Wardener- 020 3313 6690 / 020 3313 6691
- Pam Sassoa Unit (PIU) – 020 3313 6683

How do I make a comment about my visit?

We aim to provide the best possible service and staff will be happy to answer any of the questions you may have. If you have any **suggestions** or **comments** about your visit, please either speak to a member of staff or contact the patient advice and liaison service (**PALS**) on **020 3312 7777** (10.00 – 16.00, Monday to Friday). You can also email PALS at imperial.pals@nhs.net The PALS team will listen to your concerns, suggestions or queries and is often able to help solve problems on your behalf.

Alternatively, you may wish to complain by contacting our complaints department:

Complaints department, fourth floor, Salton House, St Mary's Hospital, Praed Street
London W2 1NY

Email: ICHC-tr.Complaints@nhs.net

Telephone: **020 3312 1337 / 1349**

Alternative formats

This leaflet can be provided on request in large print or easy read, as a sound recording, in Braille or in alternative languages. Please email the communications team: imperial.communications@nhs.net

Wi-fi

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