Procedures/Diagnostic Tests

Warren Grant Magnuson Clinical Center
National Institutes of Health

Percutaneous Islet Cell Transplantation

Percutaneous islet cell transplantation is a new way to treat Type I diabetes (juvenile diabetes) being developed at the National Institutes of Health.

Percutaneous means through the skin. Islet cells are the cells in your body that make insulin. Transplantation is a process that puts islet cells into your portal vein so that they can make the insulin your body needs.

First, the radiologist will insert a thin, flexible tube (catheter) through the skin and directly into the portal vein in the liver. The doctor will use ultrasound and fluoroscopy to make sure that the catheter is in the portal vein. When the doctor is sure that the catheter is properly placed, islet cells will be slowly injected through the catheter. Once the islet cells are in the portal vein, they will begin to make insulin.

Preparation (Transplant Unit)

- Do not eat or drink at least 8 hours before the procedure.
- Two I.V. (intravenous) lines will be placed in your arm. One will be used to give you insulin; the other will be used to give you medicines during the procedure.
- Your nurse will check your blood sugar levels so that the insulin infusion can be adjusted as needed during the procedure.
- Your nurse will give you your medications to reduce rejection.
- You will be taken to the special procedures section of the Diagnostic Radiology Department.

Procedure

- The radiologist will explain the procedure and the risks involved. He or she will answer any questions you have at that time. When you understand what will happen, the radiologist will ask you to read and sign a consent form. This form gives us permission to do the procedure.

- Your vital signs (heart rate, blood pressure, breathing, and temperature) will be monitored before, during, and after the procedure.
- Your nurse will monitor your blood sugar levels.
- You will receive I.V. medication to help you relax and feel comfortable during the procedure. If you feel uncomfortable or nauseated during the procedure, please let the radiologist or nurse know.
- Numbing medicine (local anesthetic) will be injected into the skin where the catheter will be inserted. You will feel a slight pinprick when the anesthetic is given.
- You will be asked to lie still during the procedure. From time to time, the radiologist may ask you to take a deep breath, hold your breath, or breathe out to get the catheter into position.
- Once the catheter is in the right place, islet cells will be infused into your portal vein system so that they can begin to make insulin.
- After you have received the islet cells, the catheter will be removed and a sterile Band-Aid will be placed over the site.

The radiologist and nurse will explain what they are doing throughout the procedure. You may ask questions at any time.

After the Procedure

- You will be taken back to your room. Your vital signs (temperature, blood pressure, heart rate, breathing) and blood sugar levels will continue to be be monitored.
- The insertion site will be checked often for bleeding, bruising, swelling, or discomfort/pain.
- You will be on strict bed rest for the next 4 hours. You will be asked to lie on your right side during this 4-hour period.
- The day after the procedure, you may have liver ultrasound and liver function studies.

Are there risks from islet cell transplantation?

- You may feel some discomfort at the site after the procedure. Pain medication is available if you need it.
- Bruising and bleeding may occur.
- The insertion site may become infected.
- There is a small risk of lung collapse.

- The portal vein may develop a blood clot.You may need blood thinning medications to prevent this.
- You may experience rejection of the islet cells, even though you are receiving medications to suppress your immune system.

Your doctor will review these risks with you in detail before your procedure begins. Please feel free to ask questions at any time.

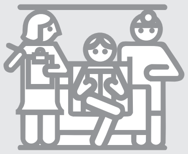
Special Instructions

Notify the protocol physician or the transplant coordinator on call if any of the following occur:

- coughing up blood
- difficulty breathing, shortness of breath, pain with breathing, or chest pain
- decreased or no urine output
- fever of 101.0 ºF (38.3 ºC)
- abdominal pain or discomfort
- nausea or vomiting
- bleeding or swelling at the insertion site
- chills
- back pain
- diarrhea

What to do if a medical emergency arises

After 4 p.m. on weekdays, or on weekends or holidays, call the NIH page operator at (301) 496-1211. Ask the operator to contact your protocol physician or the transplant coordinator on call for your clinic or unit. If you cannot contact one of the NIH doctors and you feel you need immediate help, go to the nearest emergency room for treatment.



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Questions about the Clinical Center? OCCC@cc.nih.gov

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