



ISMETT

The Istituto Mediterraneo per i Trapianti e Terapie ad Alta Specializzazione (ISMETT) is a hospital completely dedicated to organ transplantation and highly specialized therapies for end-stage organ failure. ISMETT is the result of an international partnership between the Region of Sicily and the University of Pittsburgh Medical Center (UPMC), and an example of innovative and efficient health care management. The American medical center, a leader in the field of transplantation, has transferred its experience and professionalism gained within hospitals, research centers, and international universities. The clinical and administrative activity of ISMETT is totally managed by the U.S. partner. Physicians are integral part of UPMC staff and work at ISMETT to provide the most appropriate therapies, with the support of advanced diagnostic services. ISMETT is a center of excellence in the field of transplantation, and the site of important research projects aimed at providing patients with the most advanced therapies and appropriate response to end-stage vital organ failure. ISMETT is the first hospital in southern Italy to receive Joint Commission International (JCI) accreditation, one of the most advanced quality accreditation systems for health care facilities. The accreditation confirms the excellence of ISMETT in the care and safety of patients, and its dedication to improving clinical performance, management, and training programs, which involve hundreds of nurses, physicians, technicians, and administrative staff every year.

Clinical activity

ISMETT's activity is focused on the treatment of patients with complex diseases that have damaged their vital organs. The treatment of end-stage organ failure has undergone radical changes with the new transplant programs, which are a valid therapeutic option for otherwise irreversible cases. Currently, ISMETT offers all solid organ transplant programs: liver, kidney, heart, lung, and pancreas. However, transplantation is not the only answer to end-stage organ failure. A certain number of these cases can be successfully treated with medical therapies, surgeries, radiology or endoscopy procedures. ISMETT's competences are available also for patients who do not need transplantation, but suffer from complex diseases.

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Joint Commission International



Living donor liver transplants

ISMETT



LIVER TRANSPLANTATION:

The liver transplant program was started on July 31, 1999. As of December 31, 2013, ISMETT had performed 864 liver transplants, an average of 60 per year.

Living donor liver transplants

At ISMETT, a living donor liver transplant program is available for adult and pediatric patients.

What is living-related transplantation?

The living-related liver transplant is a surgical procedure by which a healthy person, usually a consanguineous, or non-consanguineous family member, donates part of his or her liver to a patient with chronic liver disease.

Why is it proposed?

Usually organs used for transplants are procured from deceased donors. A deceased donor is an individual whose brain had irreversible damage because of a trauma or spontaneous bleeding. When this happens, the functioning of other organs can be maintained artificially for a few hours, thus allowing the procurement of the other, still functioning organs.

Unfortunately, the number of organs from deceased donors is not sufficient to transplant all patients in need. For this reason many patients cannot receive a transplant in time. In order to solve this problem, living-related liver transplantation was implemented to allow the procurement of part of the liver from a healthy donor, and transplant it in the ill patient. This is possible because the liver is capable of regenerating even after a portion is removed (in the donor), and grow again until reaching normal size after being transplanted (in the recipient).

The advantages

Live liver donation provides patients waiting for a liver transplant with many advantages over deceased organ donations. These include:

- Reduced waiting time: the length of time it takes for an organ to become available is significantly reduced when the organ is harvested from a living donor as opposed to what happens when the organ comes from a deceased donor.
- Healthy organ: since the procedures on the donor and on the recipient occur simultaneously, the organ ischemia time is reduced to a minimum, differently from a transplant performed with an organ procured from a deceased donor. In addition, live donors are healthy adults who have undergone an in-depth medical evaluation and therefore a liver from a living donors is more



certain to be of a good quality than a liver from a deceased donor.

- Elective surgery: with living-donor liver transplantation, the surgical procedure can be performed earlier, when the recipient's conditions are better. At this time, the health of the recipient has not yet worsened - as it generally happens when the wait becomes too long - which implies lower risks of complications.

Donor evaluation process

In order to protect the health of those donating a part of their liver, and optimize the results in the recipient, ISMETT has developed strict selection criteria for the donor, who must be an individual of legal age that undergoes the surgical procedure for purely selfless purposes. This means that in addition to simple clinical and instrumental evaluation, the motivation to donate must be evaluated. No financial interests or psychological pressures can exist at the basis of donation. The donor undergoes a series of in-depth analyses to evaluate whether the physical and mental health is fit for donating part of the liver. The evaluation phase includes blood and instrumental tests, and specialty consults aimed at excluding possible contraindications to the procedure (anatomical abnormalities in the liver, alterations of liver function, and other pathologies), psychological assessment, organized in several sessions and interviews, and evaluation by a multidisciplinary team composed of specialists involved in the treatment. The meeting of a committee in the presence of a physician protecting the donor's interests, examination of the documentation by a medical committee that is independent of the specialists involved in the care of the recipient, and the acquisition of specific court authorization conclude the evaluation process. Evaluation of the donor does not begin before verification of the recipient's suitability.

The procedure

From the surgical viewpoint, the living related liver transplant in adult patients is performed by procuring the right part of the donor's liver (about 60% of the whole organ), and implanting it in the recipient after removing the diseased organ. For pediatric patients, the left part, which is smaller, is donated. The liver can be split in two parts because each lobe has its own venous and arterial vascularization, and drains bile through two main ducts, right and left, that connect in the last tract outside the liver. Moreover, the liver can regenerate and, 3-4 weeks after the surgical procedure, returns to its original, pre-transplant size both in the donor and in the recipient. Two teams perform the surgeries simultaneously. They last approximately 8 hours for the donor, and 10 hours for the recipient.

Donor surgery

The donor undergoes a surgical procedure called right hepatectomy. Surgeons make an incision in the abdomen long enough to allow the localization and safe resection of a portion of the liver, 60% of the whole organ. During the surgery, appropriate compression systems are employed to maintain blood flow in the legs and prevent clots. Drainage tubes will be inserted in the operating room to remove fluids and facilitate healing. This procedure lasts from 6 to 12 hours.

Donor's post-operative course

After the surgery, the donor is admitted to the ICU, to be carefully monitored. Hospital length of stay depends on the recovery and on when physicians decide to discharge the patient, which is generally 7-8 days after the procedure. The healing process continues after discharge, and the donor can resume regular daily activities, including driving, after approximately 4-6 weeks. In cases of post-operative complications, a longer convalescence may be necessary. During convalescence, a medical team will continually assess the donor's health conditions with consults, and laboratory and radiology tests to monitor the condition of the donor's liver.

Risks of donation

Any surgical procedure implies risks, especially when performed under general anesthesia. For this type of donation, the risk of mild or severe complications is approximately 30%. Most are minor complications and resolve autonomously. Rarely, complications are very severe and require further surgeries or medical procedures.

Even if deaths of liver donors have been reported in international literature, the risk of death associated with living-related liver donation is very low (worldwide is estimated at approximately 0.5%) As of December 31, 2013, ISMETT had performed 108 living-related liver transplants. No donor has died following the procedure, and complications have been managed with appropriate treatments.

Clinical Results for the Recipient

In terms of recipient survival, ISMETT's results are among the best among the international transplant centers, with 89.6% survival rate one year after the transplant procedure, and 76.8% after five years.

