Liver transplantation

Liver failure and transplantation

- Liver failure occurs when large parts of the liver become damaged beyond repair and the liver is no longer able to function.
- Liver failure can happen suddenly (acute liver failure) as a result of infection or complications from certain medications.
  - It can also be as a result of a long-term problem including chronic hepatitis with cirrhosis, Wilson’s disease, hemochromatosis, alcoholism, and liver cancer.
- A liver transplant is considered when the liver no longer functions adequately (liver failure).
  - The reasons for carrying out liver transplants and the number of transplants carried out per population vary from country to country across Europe.
- In Europe, nearly 6,000 liver transplants are performed each year.
- The first year after transplantation is critical as more than half of deaths occur within the first year post-transplant.
- The number of organ transplantations is increasing every year.
  - In 2011, more than 30,000 transplants took place in the European Union alone.
- At the end of 2011, over 61,500 patients were on a waiting list for an organ transplant in the European Union and the number of patients dying on waiting lists was estimated to be 5,500.

History of liver transplantation and the European Liver Transplant Registry (ELTR)

- The first human liver transplant was performed by an American doctor, Dr. Thomas E. Starzl (University of Colorado Medical School).
  - However the lack of effective immunosuppressives limited the success, and the recipient did not survive for long after the operation.
- The development of immunosuppressive drugs led to an increase in survival rates with one year survival rising from 47% in 1968 to 67% in 1988-1996.
The formation of the European Liver Transplant Registry (ELTR) came out of a desire to:

- Have a register of all the liver transplants carried out in Europe
- Develop links between European liver transplant centres
- Promote scientific exchange and generate publications

The ELTR was formed by Professor Henri Bismuth France, Professor Rudolf Pichlmayer, Germany and Sir Roy Calne, UK in 1985 at the European Society for Organ Transplantation meeting.

Treatments in liver transplantation

- The discovery of the immunosuppressant effects of ciclosporin (a compound produced by fungi in the 1970s) was a significant breakthrough in liver transplantation:
  - Researchers discovered that ciclosporin can suppress the human immune system, and can prevent rejection of newly transplanted organs and tissues.
- Today several treatments are available which can help prevent or reduce the risk of rejection of a transplanted organ.
- Immunosuppressants (or anti-rejection drugs) are a class of drugs that suppress or reduce the strength of the body’s immune system:
  - One of the primary uses of immunosuppressant drugs is to reduce the body’s ability to reject a transplanted organ, such as a liver.
- Tacrolimus is an oral immunosuppressant agent which acts on cells in the immune system (called T-cells) which are responsible for attacking the transplanted organ. This is when organ rejection occurs.
References

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