Kidney and other solid organ transplantation is one of the most remarkable and dramatic therapeutic advances in medicine over the past 70 years. It is a story of great achievement and an ongoing challenge.

Initially a “clinical experiment” this field progressed to routine and reliable practice, which has proven to be clinically effective, life-saving and cost-effective when compared with non-transplantation management strategies of both chronic and acute end-stage organ failures.

Jaboulay was the first to attempt this in 1906 [1], treating two patients with renal failure by transplanting animal kidneys; in both cases, he anastomosed the renal vessels to the brachial vessels. Both transplants failed and both patients died. At that time, there was no alternative to death if renal failure developed, and it would be another thirty-eight years before the first haemodialysis machine was invented.

The first successful transplant therefore came about by avoiding an immune response, which Joseph Murray’s (American plastic surgeon) team achieved by performing a kidney transplant between identical twins on December 23, 1954, in Boston [2].

The real breakthrough came with the introduction of chemical immunosuppression that could suppress the immune system sufficiently to permit engraftment of the transplant “against nature,” while at the same time being suitably specific such that other protective immune responses remained intact. The first successful agent was azathioprine and the modern immunosuppressive era came with the discovery of cyclosporin, a calcineurin inhibitor [3], in the mid-1970s.

Cyclosporin and later tacrolimus (1984), provided sufficient immunosuppression to permit successful kidney, liver, pancreas, heart, and lung transplantsations. Advances in immunosuppression have reduced the incidence of acute rejection but have not affected chronic immune damage. Immunosuppression needs to be improved to further extend the life of grafts with induction of tolerance still the goal.

Kidney transplantation is a multidisciplinary procedure where many medical and surgical specialties have overlapping roles and cooperate to offer the best for the donor and recipient before, during and after surgery. The goal is to harvest well preserved organs, perform safe retrieval in living donors and increase the life of the graft and recipient.

Transplantation is the best example of team work; it is an evolving specialty and with the growing fields of immunology, immunosuppression, microbiology, genetics, radiology and mini-invasive surgical techniques, we acknowledge that a single surgeon or physician cannot face all by himself all the broad range aspects involved in renal grafting.

The results of kidney transplantation continue to improve, as a consequence of better immunosuppression, improvements in preservation, and in peri- and postoperative management. Renal transplantation has had a major impact on survival and quality of life of patients with chronic renal failure.

Another major breakthrough that needs to be mentioned is laparoscopic live donor nephrectomy which is a very challenging technique requiring advanced laparoscopy knowledge and high skills in order to retrieve an intact well preserved kidney with a minimum warm ischemia time.

In 1995, Ratner et al., from Johns Hopkins in Baltimore, were the first to perform laparoscopic nephrectomy on live human donors [4]. All subsequent studies have shown that with this technique, laparoscopic donors have fewer days of hospitalization, early return to work and daily activities, have less pain, less need for analgesics and a better cosmetic result. Nowadays, laparoscopic live donor nephrectomy has become a standard of care in many major and experienced centers.

Nevertheless, the main factor limiting the success of transplantation continues to be the shortage of suitable donor organs. In our country the number of deceased organ donors is very limited despite all the efforts of the Lebanese National Organization for Organ and Tissue Donation and Transplantation (NOOTDT) founded in 2002; and all centers are mainly relying on living donors.

donors. However, grafts obtained from living donors have better results [5] because of donor age, better compatibility, much less cold ischemia time and less reperfusion injury.

In this special issue of the Lebanese Medical Journal, we will be dealing with different medical and surgical views of kidney transplantation and we will be discussing our unique pediatric renal transplantation experience going from small weight infants under two years of age to adolescents.

Also experience and results from extreme aspects of renal transplantation with ABO-incompatible donors, which is nowadays an acceptable established modality, will be reviewed.

We wish you a good reading and hope that it will bring new insights and interesting information to all the medical community.

REFERENCES

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