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Deceased kidney Donor Transplantation in Iran: Past, Present and Future

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Kidney transplantation in patients with ESRD requiring renal replacement therapy is preferable to dialysis as it provides a better quality of life and improved survival, as well as substantial cost-savings. Organ transplantation in Iran began as early as 1967, with deceased donor kidney transplantation in Shiraz (1). In 2000, the Iranian Parliament made organ retrieval from deceased donors possible by passing a law with the approval of the cessation of brain function as equivalent to death instead of accepting only conventional heart-lung criteria (2). Once this legislative initiative was made to respond to cultural and religious concerns regarding donation after death, the number of kidneys from deceased donors increased significantly. Less than one percent of kidney transplants came from deceased donors before passing the law; however, at the present time, deceased donor renal transplantations account for near to 20% of the annual transplantation in Iran (approximately 381 cases in 2008) (3). Fortunately, the proportion of organs from deceased donors is increasing in Iran.

How kidney transplantation from deceased donors works in Iran

Iran's organ sharing system is similar to that of many other countries. It is centralized under the Ministry of Health and removal of organs requires either a donor card signed by the deceased or family consent. Iran transplant organ procurement (Iran-TOP) was established in 2000 in Tehran. Organ procurement organizations and brain death identification units recognize potential donors and procure organs, ensuring transparency in the process of matching donors and recipients. Brain death must be diagnosed and certified by five physicians, namely a neurologist, a neurosurgeon, a medical specialist, an anesthesiologist, and a specialist in forensic medicine appointed by the Ministry of Health. In addition, members of the team that diagnoses and establishes brain death must not be part of the transplantation team (4). The deceased donor program is «purely altruistic» according to the Transplantation and Special Disease Centre, the families of deceased donors receive no payment for these kidneys, except funeral expenses in a few cases (5). There are now 25 kidney and 2 liver transplantation centers nationwide that facilitate procurement of organs all over the country (6), and kidneys are transplanted more than any other organ.

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Experience of a single center with deceased donor kidney transplantation

Although, organ procurement in Iran benefits allograft from deceased and living related donors, however, deceased organ donation in Iran still remains under-utilized. At present, Iran has the largest reported experience of living unrelated donor transplants (1). By the end of 2008, approximately 25,500 kidney transplantations were done in Iran (94% of the transplant experience has been *via* live-donor transplantation); all of which were performed inside the country (3).

The Baqiyatallah Renal Transplant center is the second largest kidney transplant unit in terms of total number of renal transplantation (over 2800 transplants) carried out in Iran. Deceased kidney donor transplantation was started at our center in 2002 and the annual number of kidney transplantations from deceased donors increased 0.4% in 2002 to 14% and 31.5% in 2007 and 2008, respectively. In year 2001, 70 deceased kidney transplantations were carried out in all of transplant centers of Iran (7). In the year 2008, we performed 76 kidney transplantations from deceased donor at the Baqiyatallah Renal Transplant Center and the increasing trend of this type of renal transplantation is encouraging. However, this amount is prominently more than national proportional of deceased kidney donor transplantation. Nevertheless, the overall outlook of deceased kidney donor transplantation practice in our center and also in other centers is promising.

What should we do?

Kidney transplantation tends to be more cost-effective than dialysis, with successful transplantation incurring lower costs of treatment and inducing improved quality of life. Transplantation also results in a greater ability of patients to participate effectively in the community. Existing living-related and unrelated donor kidney transplantation should not be discouraged, although such programs are unlikely to fully meet demand. There are other reasons to support deceased donor programs – the risks and burdens to the living donor are avoided, and the deceased donor can potentially help multiple needy patients through donation of other organs such as heart, liver, etc. For deceased donor transplant programs to develop in Iran, education of health professionals and the public is required to make possible the support for organ donation and increase the pool of potential donors. We, however, have to remove the following major barriers for the improvement of deceased transplant program: inadequate public awareness, attitude of the medical community, different concepts of brain death, and a sub-standard nationwide network for deceased transplantation. To maximize deceased donation, effective coordination is critical, alongside sufficient infrastructure, trained staff and favorable government policy. Centralized approaches to organ procurement tend to be most effective. Interestingly, we observed an increase in deceased donor transplants after the establishment of hospital-based Tissue Organ Procurement teams and centralization of the coordination of deceased donor transplantation in Iran. On the other hand, we suggest that the living and deceased donation should be balanced.

We conclude that in the view of last few years' remarkable progress, the future of kidney transplantation from deceased donors in Iran is highly promising and trend setting for other countries in the region.

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