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Deceased donor renal transplantation and the disruptive effect of commercial transplants: the experience of Oman

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Abstract

The Oman Renal Transplantation Program was established in 1988 as a joint venture between Sultan Qaboos University and the Ministry of Health. It began with both living related donor (LRD) and deceased donor (DD) transplants. Over the next nine years, while the LRD programme progressed relatively well, there were only thirteen DD transplants. Two of the DD kidneys were obtained from overseas via an active collaboration with the Euro-transplant organisation, and one DD kidney was obtained from Saudi Arabia within the Gulf Cooperative Council exchange programme. The rest of the DD kidneys were obtained in Oman. The Omani DD programme, although it was a pioneering effort in the Gulf region at the time, was not entirely sustainable. In this paper we focus on the challenges we encountered. Among the major challenges was the absence of resources to establish a dedicated DD programme and particularly the failure to develop a cadre of dedicated transplant coordinators.

Background

End-stage renal failure is managed by dialysis or transplantation, and patients have a right to them where these modalities can be provided. Because of the almost universal shortage of donors, most successful programmes depend on both related donors (either living related donors (LRD), or living unrelated donors (LUD) and deceased donors (DD). In most developing countries, it has been difficult to establish DD programmes because that requires a huge amount of government support, not least by providing the legal framework and establishing

brain death criteria as constituting death – the latter to be done unequivocally, with the population being aware and participating in the process. In some countries, there has been, for a long time, a lack of clarity on this issue, based often on religious or cultural interpretations. In Oman, we did develop transplant regulations in 1994 that were endorsed by formal ministerial decrees. Though the civil authorities have accepted the brain death criteria, the religious authorities have not yet publicly accepted them. As a result, although organs have been retrieved from deceased persons on rare occasions, the situation has become equivocal. Self-sufficiency in organs for transplantation is not possible at the moment without an active DD programme. The absence of such a programme will ultimately lead to the flourishing of disruptive transplantations which include rampant commercial transplants in neighbouring countries, and on rare occasions, transplants from executed prisoners in countries such as China.

The Omani experience

The Oman Renal Transplantation Program was established in 1988 as a joint venture between the two major academic and service institutions of the country, namely Sultan Qaboos University and the Ministry of Health. Transplantations were performed using both DD and LRD. Relationship was defined by blood or marriage. We did not, and still do not, accept LUD for fear of hidden commercialism, although most developed countries have now accepted this mode of donation with proper ethical and legal measures (1–4). This policy may

need to be revisited in the near future. Some DD transplants were performed in very young children of less than 2 years of age with excellent results; and one of them still has a functioning graft 20 years after the transplantation. Thirteen DD transplants were performed during the period 1988–1997. During that same period, we performed 60 LRD transplants. Subsequently, another two DD transplants were performed in Oman and eight more DD transplants were performed on Omanis who were living abroad, mainly as students in the USA and the UK, and when they returned we looked after them. Our total experience in this period, therefore, is of about 23 DD transplants. The programme has evolved now to being mainly one of LRD transplants because of deceased donation becoming unsustainable.

Before we look at the challenges for sustainability, let us mention the components of success for even the small number of transplants that were performed under difficult conditions:

1. *Competency, collaboration and team spirit:* The cooperation among dedicated and expert surgeons and physicians was crucial both in the establishment of the programme and in its implementation. The programme began when the medical services in the country were relatively young and when it was difficult to convince people to donate blood, and so there were many administrative, logistic and societal issues that had to be addressed.
2. *Ethical expertise:* There were many new ethical issues to address in both the LRD and DD arms of the programme. These were practical ethical issues that were addressed using sound, universal values and guidelines. As a result, we were able to establish a measure of confidence among administrators, donors and recipients, and their families. The patients did perceive the caring team as being empathetic. Good communication with patients and their relatives was a priority.
3. *Donor procurement:* In the absence of a structured entity and dedicated transplant coordinators, DD organ procurement was not developed as much as the other components of the programme, which evolved to focus more on LRD transplantation. Nevertheless, serious efforts were made to engage medical and nursing staff in intensive care units but the number of transplants attests to the modest success we were able to achieve. A critical care head nurse at a hospital outside the programme was most helpful in identifying potential deceased donors, largely because of her European experience in organ retrieval.
4. *Regional and international cooperation:* These were extremely valuable, especially at the beginning of the DD programme. We obtained three DD kidneys through Euro-transplant and the Saudi Center for Organ Transplantation (SCOT). However, these were exchange programmes and we were not able to reciprocate.

Challenges to programme sustainability

1. *The absence of a dedicated entity for DD transplants:* Chief among the challenges was the absence of a dedicated

entity for DD transplants. This could be due to a perception by the authorities of the cultural prematurity of such a challenge and the ease with which certain patients were able to get LUD transplantation from a neighbouring country. Since so many patients required transplants and it was easier to establish an LRD programme, we allocated more resources towards that, while we continued discussions with the authorities for the acceptance of brain death criteria. LRD transplantation was facilitated by the large sizes of nuclear and extended families in Oman—a similar situation exists in all the Gulf countries. Attempts to expand the programme to include a structured DD component with dedicated transplant coordinators was beset by many barriers, despite introducing educational programmes such as the EDHEP (European Donor Hospital Education Program, which later became “Donor Action”) in 1996 and total procurement management in collaboration with the University of Barcelona in 2008. Many nurses and doctors were sent for coordination training to Turkey, Saudi Arabia, Kuwait and Spain, but we could not convert that experience into results because a structured entity was lacking. Had we succeeded in establishing a structured DD component, it is very likely the numbers of DD transplants would have been significantly higher. However, we continue with our advocacy to the authorities about the vitality of the programme and the need for their public support.

2. *The impact of disruptive rampant commercial transplants:* Our study in the formative stages of the programme resulted in one of the first publications to establish the risks of unregulated commercial transplants (5), followed by a number of contributions to the debate about living donors (6,7). At that stage, we had not yet encountered on a large scale the disruptive effects on our own programme as a result of our patients with end-stage renal failure going to purchase kidneys overseas. This disruption of our programme became, and continues to be, a major hindrance to developing both our LRD and DD components, reducing the pressure on the authorities to provide more resources for our own transplant programme, particularly for the DD component. We have been supportive of The Declaration of Istanbul (DoI) (8), which has set ethical guidelines and a framework for transplantation. The DoI is strongly against patients travelling outside their own countries to buy organs (transplant tourism). High and realistic hopes were hinged on the DoI. Indeed, immediately after the DoI, commercial transplants decreased from 49 in 2007 to 30 in 2010. Even more impressive was that, during the same period, transplants performed in Oman increased from 12 in 2007 to 23 in 2009 (9).

Discussion

An interesting question that arises is with regard to which should be done first: attempting to ban transplant tourism or establishing a strong and dedicated DD unit with professional transplant coordinators? While we cannot definitively answer

this question we can cite the successful experience of our neighbouring countries.

The Saudi Center for Organ Transplantation (SCOT) was established with dedicated resources for both LRD and DD transplants. While they also suffered from the disruptive effects of transplant tourism, their dedicated DD component enabled them to develop a strong DD programme, which in turn undermined transplant tourism to a great extent (10).

Another good example is Iran. While the programme there was and is still based mainly, but not solely, on LUD, it has several unique features. It is officially regulated by the state (11). The work-up of donors and recipients, kidney allocation and the reward is directed by a non-profit organisation. Transplants are restricted only to Iranian nationals, and transplant tourism is forbidden. In principle, the system does not breach international ethics guidelines and has become widely accepted by the international community. It has also permitted bridging towards DD transplants. The Iranian DD programmes are also flourishing, mainly in Shiraz and Tehran. These DD programmes have excellent results (12) and are not only thriving but show constant improvement. We believe that if transplant tourism could be banned, and local transplant programmes are well supported, then it would be possible to achieve an acceptable measure of self-sufficiency through both LD and DD transplants.

We have also been challenged by the issue of unsuitable living donors: obesity, hypertension and diabetes are conditions that are increasing exponentially in many parts of the world, but more so in the Gulf countries (13). Many of the potential donors might not be suitable for donation, or donation may present a long-term risk for their health (14–17). We have analysed the reasons for exclusion of potential donors from donation for the period January 2006 through July 2008. About 50% of potential donors were declined (18). Similar high rates of exclusions have also been observed for kidney and liver donors in the UK and the USA (19–20). The reasons for donors’ and recipient’s preclusion in Oman are summarised in Table 1.

Another important point is the role of public engagement. The possible resistance of our populations to DD transplants, while it could be real, should not be overestimated (21–25). We have recently carried out a survey to examine the attitudes of the Omani population towards transplantation (26). The results were not overtly discouraging (Table 2). In Oman, public awareness and public education campaigns have been shown to work well in increasing childhood vaccination rates and in increasing birth spacing. This would suggest that similar measures might succeed in increasing life-saving programmes such as organ transplantation. The experience of our neighbouring countries such as Saudi Arabia (27), Kuwait (28), Iran (12), and Turkey (29) give us hope.

Conclusion

DD transplants are technically feasible and are necessary in developing countries. To succeed, such programmes require a dedicated organisational unit with competent coordinators.

Legal, social, psychological, and cultural barriers may be overcome with proper advocacy, awareness, education, and engagement. Autosufficiency in organs through an active deceased donation programme would also be the best means to deter commercial transplants.

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Table 1
Causes of preclusion of donors and recipients

Potential recipients	70
Potential donors	99
Recipients transplanted	50.7%
Rejected or declined donors	58 (58.6%)
Accomplished transplantations	35
Medical causes in the 99 donors (35%)	
Hypertension	10
Obesity	5
Urological anomalies	4
Proteinuria	4
Unknown diabetes mellitus	4
High liver enzymes	2
Viral hepatitis	2
Others	5
Non-medical causes in the recipient (15%)	
Transplant tourism	11
Others	4

Table 2
Question: Would you donate your organs after death?

Education	Yes (%)	No (%)	Don’t know (%)
Primary	47.1	23.5	26.5
Postgraduate	51.9	29.6	18.5
University	36.4	39.9	23.1
Secondary	42.0	44.0	14.0
Average	40.8	38.5	20.

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Pakistan’s experience with kidney transplantation and trade: a call for international solidarity

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Abstract

Pakistan has taken a long and tortuous road towards curbing the trade in organs within its borders. Yet, despite the phenomenal gains, several challenges remain in this area. For example, robust and sustainable deceased donor programmes must be established to meet the needs of a country which has a high prevalence of

kidney disease and failure. Further, it is necessary to offer an alternative source of organs for transplantation to desperate patients who resort to buying these from the “market”. Cultural factors and religious beliefs about the sanctity and inviolability of the corpse, as well as the lack of public and professional education regarding the procurement of organs from the deceased, pose considerable barriers that must be surmounted.