Organ Transplantation in India : Indian Scenario and Perspectives for the Armed Forces

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With improved survival of its citizens and the changed pattern of their diseases, India tends to focus on certain pet problems such as ischaemic heart diseases and human immunodeficiency virus (HIV) infections ignoring the burden of chronic organ failures and end stage diseases. A philosophical attitude towards organ failure secondary to chronic diseases and certain indulgences such as alcoholism is prevalent. A national apathy associated with these diseases also exists, as the treatment options are resource consuming, limited and expensive. Understandably, the cure by eventual organ replacement remains only a dream for the vast majority of these patients.

The prevalence of chronic organ failure and end stage diseases in India, excepting chronic renal failure (CRF) and end stage renal disease (ESRD), is not known. The prevalence of CRF in our adult population varies from 0.785% [1] to 1.39% [2]. Sadly ESRD population in our country tends to be predominantly young due to delay in diagnosis and absence of sponsored measures to reduce renal deterioration in patients with CRF [3]. Due to a paucity of free renal replacement therapy (RRT) in Government hospitals and the high costs of dialysis, both haemo and peritoneal, it is estimated that only about 10% of these patients get some form of RRT [3]. In the medium and long term, renal transplantation (RTx) is the most economical form of RRT and the best mode to improve quality of life in these patients. Unfortunately, less than 5% of all patients with ESRD in India get renal transplants [3]. As availability of RRT is limited, options at prevention of renal deterioration must be explored. Evidence suggests that appropriate therapy aimed at controlling the common causes namely, diabetes and hypertension results in renal conservation and delays the need for RRT [1,2]. Narula et al [4], in their article appearing in this issue, stress on conservative management of chronic renal failure.

Though RTx has been in practice in India for more than 3 decades, it has been grossly inadequate for Indian patients in terms of actual numbers, due to a shortage of resources and organs. Unlike most countries where cadaveric transplantation programme is very successful, in India less than 2% of RTx is based on brain dead heart beating cadaver donors [3]. The reasons for our cadaveric programme not taking off are many and complex. The most obvious ones are social and religious beliefs and taboos as well as the absence of a decision making process in the bereaved family. The other important factors are the near non-existence of networked organ tracking and retrieval organisations and the equivalent of transplant co-ordinators in India. The few successes seen in cadaver donation in India have been due more to the efforts of certain dedicated individuals rather than any organ retrieval and banking organisations in some Indian centres.

RTx is being performed practically in every major hospital in India, confirming the existence of a large pool of skilled and trained transplant teams. The bottleneck is the availability of organs. The living related donor programme suffers major setbacks. For example, only about three quarters of the patients obtain potential related donors of whom only two thirds are willing to donate and eventually only 35% of the eligible ESRD patients have related, willing and fit donors [5]. This underlines the sad and notorious aspect of the renal transplant programme in India, *i.e.* a vast majority of renal transplants are from non-related or paid live donors. Adverse publicity in the media led to the arrest of many members of 'kidney cartels'. A fallout of this was a reduction in the number of RTx from 3600 in 2002 to about 2800 in 2003; with the trend continuing in subsequent years [6].

When it became known that many poor donors do not get even a nominal proportion of the amount a

recipient pays to the cartel and that some of these donors do die [7], many ethical, some philosophical but very few practical solutions were offered by the scientific community [6,7]. The provisions laid down in The Transplantation of Human Organs Act (1994) to prevent unrelated organ donation are either inadequate or the act lacks teeth. According to some authorities, one way of preventing illegal organ trafficking is to legalise payments for organ donations, thereby ensuring that the donors get their due [6,8]. In order to discourage unrelated RTx and encourage live related donation, a case has been made for the use of marginal/ emotionally related donors in India [9,10].

The situation of other organ transplants is no different in India. Our country has an enormous and ever increasing pool of patients with end stage liver disease for whom the only therapy available is liver transplantation [11]. In the absence of any other therapy, an overwhelming majority of them die and only a handful manages to get timely transplants. Though liver transplantation is technically very demanding, there are a large number of surgeons and other health care professionals trained in liver transplantation in India. However, this procedure is performed in only about 10 centres in India with their total experience amounting to about 250 liver transplants. Heart and lung transplantations, either individually or in combination, are being performed in India since the first successful heart transplant done in 1994, but their cumulative numbers can be counted on finger tips. The basic reason for these organ transplant procedures not taking off on a large scale is the absence of a viable cadaver donor programme. Evidence for this stems from the knowledge that a lion's share of liver grafts in Indian centres come from live relatives [12] and such live donation is not possible for heart and lung transplants, and hence their small numbers.

The first successful combined renal and pancreatic transplantation has recently been performed in India [13], though more than 800 such transplants are performed yearly in the USA alone. The obvious conclusion is that unless we have a viable cadaver transplant programme, we will stay routed to where we are now. When the world is rejoicing over the success of the first facial transplantation [14], Indians can only dream of it.

Bone marrow transplantation (BMT) and autologous stem cell transplantations are being increasingly performed in selected centres in India at present, with results comparable to those of the West [15]. The cost of this procedure in India is many times lower than that in the developed countries and more and more centres are now offering BMT and autologous stem cell transplantation to both the local population as well as

medical tourists. This is clearly possible as these procedures are not dependent on cadaveric organs. All the arguments presented so far, emphasise the singular need for an active, cadaver-donor transplant programme in India.

The Armed Forces Medical Services (AFMS) has been offering its clientele all kinds of renal replacement therapy including renal transplants. Army Hospital (R&R) experience of 500 patients who underwent renal transplantation shows that our kidney graft survival rates are comparable to the best in the world (Varma PP 2006, personal communication, Nov 20). The same hospital offers BMT and plans are afoot to start liver transplant programme in that hospital and key personnel have been / are being trained in centres of excellence abroad. In addition, some of our haematopathologists are being trained in stem cell harvesting and culture. It is expected that the AFMS will offer their patients the state of the art organ transplants in the near future. One way of improving the outcomes following organ transplants would be to concentrate to establish fewer centres of excellence, rather than disperse resources to many centres.

A concern, however, lingers that the programme in AFMS also may eventually be jeopardised for want of adequate donors. To use bridge parlance, the only way out is to change the losing combination. There are three ways, as I visualise, to change the pitiable state of the cadaver transplant programme in this country. Firstly, the public needs to be educated, through all available means. Secondly, a dynamic and motivated organ retrieval apparatus should be established at the national level. Thirdly, the existing Human Organ Transplantation Act should be modified to plug the loop holes and to make 'presumed consent' - unless otherwise explicitly stated- as the operating mode for organ retrieval from a brain dead cadaver.

In the meanwhile, just as Neemuch in Madhya Pradesh has shown the way for corneal donation, the Armed Forces should show the country how to run a successful cadaver transplant programme.

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