Renal Transplantation Problem in Indonesia

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INTRODUCTION

Renal transplantation is the pioneer of solid organ transplantation and best treatment for terminal renal failure management. Renal transplantation from human to other human was firstly done on 1911. While renal transplantation operation using human allograft renal, that have made more than one year survival was occured in Boston on 1954, in terminal renal failure patient who got renal transplant from his twins brother. In treatment, there has been good coordination between urologist and nephrologist, so that it may become good team-work model.¹

In Indonesia renal transplantation was documented since 1977 in Cipto Mangunkusumo Hospital. But the progress is still dissappointed. Up to 1999, there have been 379 renal transplantations in Indonesia. Hospitals that serve transplantation are Cipto Mangunkusumo National Center Hospital, PGI Cikini, Gatot Subroto Hospital (Jakarta), Karyadi Hospital, Telogorejo Hospital (Semarang), Surabaya Hospital, Sardjito Hospital (Yogyakarta), Pirngadi Hospital (Medan), Hasan Sadikin and Advent Hospital (Bandung).²

Survival rate of renal transplantation in Indonesia is good enough, i.e. from October 1977 to June 1993 the five years survival rate was 60% and 50% after 16 years.³

Renal transplantation could increase the quality of life of terminal renal failure patient,⁴ but the case amount of renal transplantation that had been done is not adequate compare to the patient necessity for renal transplantation. There are 3000 patients who need hemodialysis every year in Indonesia. In National Central Hospital of Cipto Mangunkusumo there are 208, 211, and 213 new hemodialysis patients in the year of 2000, 2001, and 2002, respectively.

In Indonesia, there are some renal transplantation problems, such as donor and cost limitation, starting from dialysis until the day of transplantation. Other problems including technical problem, availability of immunosuppresant drugs for post-transplantation maintenance. Custom and religion have been encountered relatively. On September 8th, 1995 'The Kemayoran Consesus has been signed, which agree that renal and other organ transplantation have been welcomed by all of religion in Indonesia.⁵

This paper will discuss about some problems that inhibit availability of renal donor and cost problem for this procedure and suggestion to solve this problem.

DONOR

Renal donor could be living donor or cadaver donor. Living donor usually derive from family environment. Cadaver donor may be a ‘corpse’ with beating heart (beating donor) or it may be taken from cadaver that has stopped (non-beating donor). In general, cadaver donor is head trauma patient or patient with cerebrovascular disease.²

Living Donor

Prerequisites for living donor are based on pre-operative evaluation. The transplantation team must be assured that living donor may live with renal function that nearly normal after unilateral nephrectomy. We assume that living donor is not suitable if there is: significant mental dysfunction, significant renal disease, high post-operative mortality and morbidity, has significant contagious disease, ABO incompability, or if there is positive cross-match result between donor lymphocyte and recipient serum. The serologic test was done for HIV, human T-lymphoproliferative virus type 1, hepatitis, cyto megalovirus and syphilis. Some health center has also done examination for Epstein-Barr virus, especially if the recipients are children. Diabetes mellitus could be a donor if the blood glucose level is less
than 200 mg/dl, fasting blood glucose is level less than 125 mg/dl or 2 hrs blood glucose after 75 gram glucose load.1

**Cadaver Donor**

Many of renal transplantation center reluctant to use non-heart beating donor because there is high incidence of acute renal failure in donated kidney,6 but with adequate therapy, the result is quite good.7

Criteria for ideal cadaver donor are normal renal function, no hypertension that need any therapy, no diabetes mellitus, no malignancy except primary brain tumor or superficial skin malignancy that has been treated, no severe viral or bacterial infection, normal urinalysis, age range from 6-45 years and normal syphilis, HIV and human T-lymphoproliferative virus type 1 test result. In order to increase the donor amount, we may do some exception. Blood culture was done on donor that has been hospitalized for more than 72 hours. The survival rate of recipient that has received cadaver donor age less than 6 years or more than 45 years is worse.1

**Donor Availability Problem**

The problem of living donor is limitation of alternative. In chronic renal failure disease that caused by polycystic kidney, most of the family may also has the same defect, so they hardly donate their kidney.8 Correlation between donor and recipient about transplantation that had been done in Cipto Mangunkusumo Hospital and PGI Cikini Hospital up to 1992 are 53,9% sibling, 18,3% own-parents, 13,9% own children, and 13,9% etc vb.3

There is also problem to get donor out of family environment. There is community stigma that by donating one of their kidneys, it will decrease their daily activity, even this has been proven untrue. Based on experience of a renal donor, she may live normally, and further, she may get pregnant and delivering two children normally.9 Kemayoran Consensus, as one of 2nd National Conference, Yayasan Ginjal Indonesia (YAGINA) and PERNEFRI 1995 in Jakarta, which also forbidding commercialization of body organ.5

Cadaver donor has not been done in Indonesia, even in keeping with Kemayoran Consensus; there is no religion that forbidding it.5 Beside that, refusal rate of renal cadaver transplantation is larger than living donor. There is no national data bank to calculate survival rate of cadaver donor in Indonesia. And also, Hospital has not ready to perform operation cito every time. This is not only involving doctors but in general, the Hospital system.

**COST**

There are three major components to determine the transplantation-procedure cost. First, cost from dialysis up to the date of renal transplantation. Second, peri-operative cost of renal transplantation itself, and third, post-operative cost of immunosuppressant drugs. For the first component, waiting period to perform transplantation has very important role, the longer waiting period, the larger cost we need. Average dialysis cost and its drugs are Rp 4,154,000,00 per month, which consist of 9 times hemodialysis cost Rp 406,000,00 plus Rp 500,000,00 drugs. Peri-operative cost of renal transplantation and immunosuppressant drugs is about Rp 8,000,000,00 per month.

**STRATEGY TO INCREASE RENAL DONOR**

**Living Donor**

The role of YAGINA i.e. socialization about the importance of renal transplantation and condition of donor after transplantation.9 Some method to increase the amount of living donor is by modifying the donor criteria, such as by permitting donor over 55 years-old or under 5 years, donor with hypertension, diabetes mellitus, or hepatitis C history and renal with prolonged cold ischemic mass or anatomical defect. Donor with such modification criteria is known as marginal or sub-optimal donor. But marginal donor is still controversial especially in effectiveness and long term survival rate.10

**Cadaver Donor**

Government must produce regulation of organ evacuation of cadaver, i.e. regulation about dying exhortation. There are three alternative system that have been used over the world to regulate transplantation problem, i.e. opting in, opting out, and required request. Opting in is every person is asked for their willingness to be a donor after their death. Opting out is every dying person is regarded as - willing to be a donor by giving his or her consent, except there is refusal exhortation. Required request system has been used in United States, which ask the family of patient with brain death about their consents to donate that patient’s organ.11

In Spanish, the program of cadaver donor may increase renal transplantation rate up to 33,6 per million people, compare to England and German with only 13 per million people.12,13 Generally, in Europe cadaver donor may increase renal donor without subtracting living donor.14 We hope the implementation of cadaver donor program in Indonesia, the renal transplantation rate will increase.
Definition of death must also clear in every hospital, so that transplantation using cadaver donor is not to late. Therefore, there should be a system that enables to perform immediate operation at any moment. This system is very complicated and it is not involving only one hospital. Even then, it does not mean that it is impossible.

The Future of Donor

In future, we hope that the donor problem will be lessen by alternative of xeno-transplant, that is organ transplantation that derived from other species, and cloning of stem cell. But it still controversial, especially from ethical, culture and religion point of view.\textsuperscript{15,16}

STRATEGY FOR SOLVING COST PROBLEM

Shorten The Waiting Period

Cost may be reduced by shorten the waiting period. We may achieve this by good data documentation. Waiting period also correlated to operation success. The length of waiting period also affect post-operation survival rate, which correlated to the frequency of dialysis.\textsuperscript{17}

Health Insurance

In Indonesia, health insurance has become general health problem, not only for renal transplantation. We must give comprehensive understanding about renal transplantation to insurance health party, so that the insurance company willing to cover the transplantation cost. We should compare the transplantation cost with life-long hemodialysis cost for patients.

CONCLUSION

Renal transplantation is very necessary for terminal renal failure patient. The main problem is limitation of donor availability. In order to increase the amount of donor is by receiving kidney from cadaver donor. Therefore, we need good regulation to enable renal transplantation operation from cadaver donor. Besides that, we also need regulation to suppress the dialysis cost and immunosuppressant drugs and expand the participation of health insurance, so that there is inexpensive transplantation cost for the patients.

REFERENCES