Kidney Donors in Latin America

V. Duro García
Serviço de Nefrologia de Santa Casa de Misericórdia de Porto Alegre, RS, Brazil.

SUMMARY

Compared to developed countries Latin American countries perform a lesser number of kidney transplants (5.3 per million population in 1990), a very small number of them being from cadaveric donors (2.2 pmp in 1990) and non related living donors.

There are many barriers to the development of cadaveric donors transplant programs in Latin America, the more important ones being financial, legal, organizational, medical, familial and due to public opinion. Even so, the use of cadaveric donors has been increasing in most Latin America countries, from 23 % in 1980 to 27 % in 1985 and 42 % in 1990.

Transplants from non-related living donors are performed in a few countries, and, in some cases, there is suspicion of financial compensation. Through a legislation that forbids organ commerce and restricting non related living donors to special situations («emotionally related») and due to non-acceptance of non-related donors by Transplant Teams, this kind of transplant is decreassing in Latin America (6.8 % in 1980 to 3.3 % in 1990).

Introduction

Kidney transplantation offers the best survival and quality of life with the least social cost to most patients with end-stage renal disease. The major obstacle to more transplants is the lack of donors to supply the increasing number of patients on waiting lists.

Present situation

In developed countries the number of new patients beginning dialysis is on average 80-100 per million population (pmp) per year as shown on Table I[1-4], from 51 pmp in Australia to 166 pmp in USA. While the prevalence of patients in these countries is about 200-300 pmp, from 142 pmp in Sweden to 849 pmp in Japan, the number of kidney transplants performed in these countries is about 25-40 pmp/year, being a positive exception Austria (54 pmp/year) and negative one Italy (11.8 pmp/year) and Japan (6.0 pmp/year). Except for Japan, that for cultural reassons performs mostly living donors transplants, in developed countries 78.0 % to 98.8 % of the transplants are from cadaveric donors.

Latin America has a population of 440 million inhabitants and an average percapita income less than US $ 2,500. The lack of adequate records is an obstacle to estimating the exact number of patients on dialysis and the number of transplants performed in many countries. Some of the data discussed here, although not yet published, was presented at VI Latin American Transplants Congress (Porto Alegre, September 1991) and VIII Latin American Congress of Nephrology (Quito, October 1991). The number of new patients beginning dialysis in countries where data is known is presented in Figure 1, and the range is 21 pmp in Venezuela to 170 pmp in Puerto Rico[5]. The prevalence of patients on dialysis in 1990 was 75 pmp, and it varies from 65 pmp in Peru to 470 pmp in Puerto Rico.

Addres: Rua Correa Lima, 1493
CEP 90640 Porto Alegre, RS
Brazil.

Table I. Treatment of end stage renal disease patients in some developed countries[1-4]

Country	Dialysis		Transplantation		
	Incidence	Prevalence	pmp/year	%LD	%URLD
Australia (1989)	51	163	28	8.2	
Austria (1990)	101	248	54.0	9.0	
Belgium (1990)	97	261	37.8	8.0	
Canada (1989)	77	215	33.0	16.1	(0.8)
Denmark (1990)	52	198	32.0	18.0	
France (1990)	*100	239	35.4	2.5	
Italy (1990)	*100	253	12.0		
Japan (1990)	149	840	6.0	72.0	(4.5)
Spain (1990)	60	326	35.6	1.2	
Sweden (1990)	66	142	1.0	22.0	
UK (1990)	61	154	32.5		
USA (1991)	166	488	39.5	22.3	(0.9)

* It must be assumed that the acceptance rate was close to 100 pmp[1].

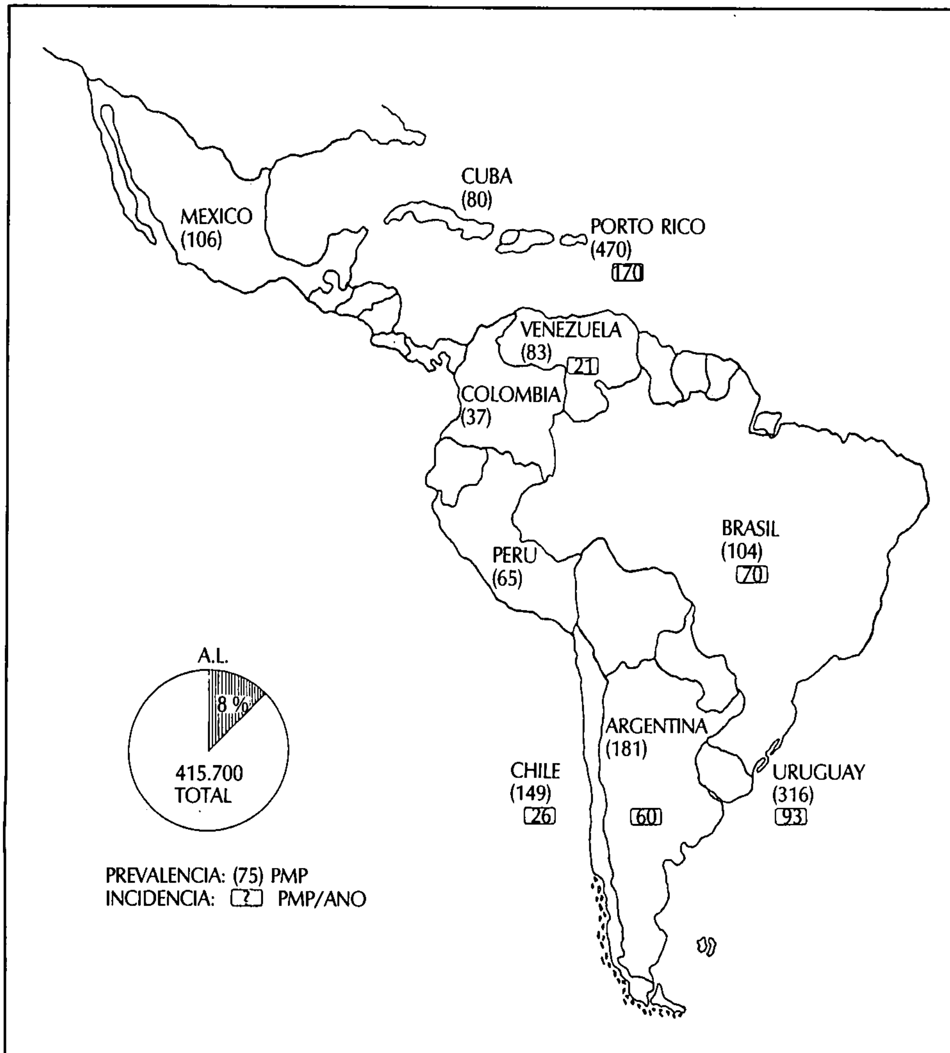

Fig. 1.—Patients on dialysis in Latin American countries: incidence and prevalence.

The number of kidney transplants performed in Latin America[6-8], are presented in Table II, and, while increasing from 660 (1.9 pmp) in 1980, to 1,180 (3.3 pmp) in 1985 and to 2,300 (5.3 pmp) in 1990, it is 5 to 6 times lower than it should be to supply the demand.

In 1990 only four Latin American countries performed 10 to 16 transplants pmp (Cuba, Chile, Uruguay and Puerto Rico), five performed 4 to 10 transplants pmp (Argentina, Venezuela, Brazil, Colombia and Mexico) and the others performed less than 4 transplants pmp. There is a correlation between the number of transplants and the percapita income (r: 0.52) as shown in Figure 2[6].

As for the kind of kidney donor in Latin America only Cuba (96.4 %) and Uruguay (84.0 %) have most transplant from cadaveric donors. A second group of countries (Venezuela, Colombia, Argentina, Puerto Rico, Chile and Panama) employed cadaveric donors in 30 to 60 % of the transplants performed, while Brazil, Mexico and Peru employed cadaveric donor in only 10 to 30 % of them. Comparing the transplants performed between 1980, 1985 and 1990 we observe that the number of cadaveric donors has increased from 23 % to 27 % and 42 %. If we analyze some countries we observe an increase in the percentage

Tabla II. Number of kidney Transplants performed in Latin America in 1980, 1985 and 1990 and the porcentage of cadaveric and living donors

	1980	1985	1990
Population (million)	350	390	440
Transplants (n)	660	1,180	2,300
(pmp)	1.9	3.3	5.3
Total number of transplants		8,000	20,800
% of cadaveric donors	23	27	42
% unrelated living donor	6.8		3.3

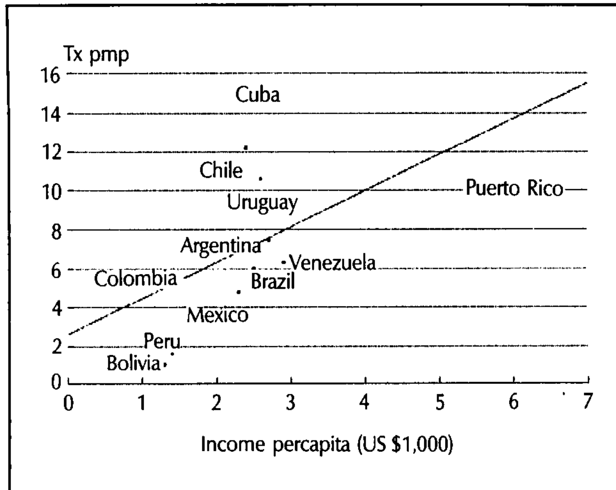

Fig. 2.—Correlation betwen percapita income and number of kidney transplants per millon population per year in some Latin American countries.

of cadaveric donors between 1985 and 1990 from 17.8 % to 38 % in Brazil, from 30 % to 42 % in Argentina and from 30 % to 46 % in Chile, also Venezuela, Mexico and Colombia had an increase in the number of transplants performed from cadaveric donors. Non related living donors (NRLD) have been employed more frequently in Peru (63 %), Bolivia (25 %) and Brazil (8.0 %)[8]. NRLD in Latin America has dropped from 6.8 % to 3.3 % between 1980 and 1990. In Brazil, this kind of donor decreased from 12.6 % in 1985 to 5.0 % in 1990 and 3.7 % in 1991 (unpublished data from SIPAC-RIM).

Perspectives

Developed countries discuse in the number of potential cadaveric donors is enough to supply the demand. The first optimistic estimations in USA and Canada that it would have 80-150 potential cadaveric donors pmp/year[9-11], were not confirmed. Studies in USA (Kentucky and Pennsylvania), Spain (Basque Autonomus Community), Switzerland (Geneve) suggest that this number is around 35-55 pmp/year[12-14]. The number of patients with cerebral death in these countries could be decreasing due to less accidents, better care of trauma patients and an increase in medical contraindications because of new tests for viral diseases detection (anti-HIV, anti-HCV)[12]. The number of cadaveric donors was 18 pmp in the USA, 13 pmp in Australia and 15-20 pmp in most European countries, varying from 5 pmp in Italy to 30 pmp in Austria[15]. Th reasons for organs not being removed were the no authorization by the family in 18 to 46 % and the non-clinical condition of the potential donor in 17 to 40 % of the cases[15-17].

Measures suggested to increase the number of transplants in these countries are:

1. The identification of all potential donors and the request for donation in all cases (required request law).
2. The decrease of no consent by families through legal measures (presumed consent law), motivation campaigns, or ethically and morally controversial measures like payment for the donor family[19].
3. Accept suboptimal donors: age (over 60 and under 10 years), diabetes, central nervous system infection, hypertension, abnormal renal function or high dose of vasopressors[20, 21].
4. Accept non heart beating donors[22].
5. To liberalize criteria for living donors[23].

In Latin America we have a different situation: Besides the fact that the number of transplant is much lower than necessary, there are two aspects related to the kind of donor that must be analyzed:

1. The small number of transplants form cadaveric donor (2.2 pmp in 1990).
2. The use of non-related living donor, sometimes with the suspicion of payment, in some Latin American countries.

Use of cadaveric donors in Latin America

The number of potential cadaveric donors in Latin America is not known. A study in a state of Brazil (Rio Grande do Sul) from 1988 to 1990 found 36.5 potential donors pmp/year[24], the same number reported in developed countries.

There are some barriers that difficult the development of transplant programs with cadaveric donors in Latin America. The most important are:

1. Financial

Increasing financial difficulties in Latin American countries is shown by the average fall of 14 % of percapita income from 1980 to 1989[25] and by the Public Health expenditures in 1986, that was on average US $24, varying from US $2 to US $184, while in Canada it was US $935 and in the United States US $783[26]. For this reason there are few resources to apply in Transplantation Programs. However, we must find a way for the Health System to adequatly finance programs and offer a transplant to every patient that needs it and not only to privileged ones.

2. Legal

Most Latin American countries have laws that regulate transplantation[27]. Some, like Brazil, are discussing a new law, and others, like Bolivia and Paraguay, have no speci-

fic legislation. There should be regulation for the diagnosis of cerebral death, the way of consent for organs removal, criteria for organ distribution, permission for the use of living related donors, restriction to the use of non related living donors, the prohibition or organ commerce and penalties to its infractions should be established as well.

As for the concept of cerebral death, however accepted as diagnosis of death in most countries, a survey in a northeastern city of Brazil (Fortaleza) in 1989 showed that only 61 % of the doctors and 49 % of the population accepted it[28], indicating misinformation even among physicians.

The consent for organs removal must find an equilibrium between the society needs for organs and the families right to privacy. The difficulties are related to the decision of who consents (the person while alive? the family? or the State?) and the way to expressing the consent or the refusal. Basically two forms of consent are used: presumed consent (opting out) in which case organs of a cadaver can be removed if this person while alive did not express any objection to it. In Austria and Belgium this law was the main factor in the increase of transplants[29]. Required consent (opting in) suppose the person has authorized while alive and/or the family after the death. For cultural, anthropologic and religious reasons legislation in Latin America give the families the right to decide. This attitude contributes of patients. Volunteer encouraging is an intermediate form in which the person decides in a document the consent or refusal while alive.

3. Organizational

The lack of organization is probably the main barrier to the development of cadaveric donor transplantation programs. In many countries there are not Transplant Coordinators in the hospitals, neither local or regional Organ Procurement Organization. Some hospitals have no conditions for donors support or operating room for organs removal. May Transplant Centers do not have an organ removal team or transport facility for potential donors or for the removal team. In 1988 in a state in the south of Brazil (Rio Grande do Sul) in 1988 an organ procurement and organ removal team with transport facilities were instituted, without other modifications, an increase in the number of kidney transplants from cadaveric donors from 4.2 pmp/year to 5.4 pmp/year in 1988, 8.0 pmp/year in 1989 and 9.5 pmp in 1990 were observed[24]. Some countries, like Argentina[30] and Mexico[31] and some states in Brazil[24,32] have organized cadaveric donor transplant programs.

4. Medical

In many cases the barriers are medical: failure in identifying potential donors or failure in starting the donation process. Neurologists and Intensive Care Doctors resist not on phylosophical grounds, but they have no enthusiasm, because a potential organ donor is a treatment failure on the doctors point of view. Other factors are the fear of legal problems and the extra work involving in maintaining the potential donor.

5. Familial

In five studies in Latin America (Argentina, Uruguay, Puerto Rico, Brazil-RS and Brazil-SP) family refusal of organ removal occurred in 47 % of the cases, the range being from 37 % to 58 %[24,33-35]. In one of the studies, family was not localized in 13 % of the cases[24]. Most frequent causes of family refusal were: the deceased while alive opposed organ donation, did not accept the concept of cerebral death, inability to take a decision, fear or organ commerce, intense emotional attachment to the corpse.

6. Population

Polls in Chile[36], Puerto Rico[37] and Brazil[28] showed that 76 % would donate their organs after death, but only 47 % would donate organs of a dead family member. Motives given are doubt about death declaration, ignorance of needs of organs for transplantation, unwillingness to the mutilation of the corpse, the possibility of organ commerce and sensationalist news, not proved, of children kidnapped in poor countries to have organs removed for transplantation in rich countries.

Use of non related living donor in Latin America

Motivations for kidney donation are altruism and financial reward. While donation for altruism or love is ethically acceptable, the «donation» for payment must be condemned and abolished. Kidney transplants using living related donors (father, mother, sibling) is the most frequent in most Latin American countries. It is ethically correct if the donor is healthy (body and psyche), freely agree after being adequately informed about risks and benefits of donation. It is not so clear wether the future donor is only legally related (spouses, adopted parents) or is a second degree relative (uncles, cousins, nephews). If motivation is exclusively altruistic, deep and actual emotions (donor emotionally related), without coercion and there is no financial compensation, this kind of donor could be used in special situations, in accordance with recommendations of The International Transplantation Society[39,40].

The use of non related living donor, with the exception of emotionally related in special situations, is an open door to organ commerce, that is morally offensive and ethically unjustifiable, because its against human dignity and thrives on misery. This kind of transplant with financial compensation has been performed in some Trans-

plant Centers in India[41, 42] and there is suspicion that it colud be sporadically performed in Latin America[8, 43], however in our countries frank organ commerce or routine paid unrelated donation does not occur. Reasons alleged for this kind of transplant are that it benefits the receptor, due to the lack of dialysis facilities and lack of cadaveric donor transplant programs, and also the «donor», as the payment is higher than the country's percapita income[44]. So while in developed countries the «liberalization» of the criteria of acceptance of living donors is discussed, in Latin America, on the other hand, the criteria must be restricted, as the use of non related living donors in developing countries like ours increases the possibilities of exploitation of poor people, that would feel tempted to sell their organs.

Measures suggested to end living donor organ commerce are:

1. Transplant laws should, as already are in many Latin American countries, forbid organ commerce, following resolutions of the World Health Organization (WHA 40.13, May 1982 and WHA 42.5, May 1989). The law should also forbid or restrict the use of non-related living donors, like Venezuela and Argentina.
2. All transplants should be registered at the Health Office for control, and, also, a non related living donor transplant should previously be authorized by a Committee that would analyze each case, as in England, where there is ULTRA (Unrelated Live Transplant Regulatory Authority).
3. As doctors participate, voluntarily or not, in organ selling from poor donors to rich receptors. Transplant Teams' decision of not accepting unrelated live donors, as many centers in Brazil do, is very important to achieve the aim.

Conclusion

Transplant Teams in Latin America working together in their regions or countries, should have as their aims the development of cadaveric donors programs, the incentive of living related donors, restrictions to the use of non related living donor and the extinction of any organ commerce.

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