

REPORTS FROM AROUND THE GLOBE

THE LATIN AMERICAN DIALYSIS AND TRANSPLANT REGISTRY: REPORT 2006

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The Latin American Dialysis and Transplant Registry collects information on end-stage renal disease and its treatment in 20 countries of the region. By December 2005, a total of 257,974 patients were on renal replacement therapy, for a prevalence of 478.2 cases per million population; 57% were on hemodialysis, 23% on peritoneal dialysis, and 20% had a functioning kidney graft. The prevalence on renal replacement therapy continued to grow at a rate of $\approx 6\%$ annually. Hemodialysis continued to be the treatment of choice in the region, except for in Mexico, Nicaragua, El Salvador, the Dominican Republic, and Guatemala, where peritoneal dialysis predominated. Diabetes remained the leading cause of end-stage renal disease, and the highest incidences were reported in Puerto Rico (65%), Mexico (51%), Venezuela (42%), and Colombia (35%). Forty-four percent of incident patients were aged >65 years. The rate of transplantation remained unchanged at 15 per million population, which is not sufficient to satisfy the demand of the growing number of patients in the waiting list. Close to 50% of transplants came from cadaver donors. A total of 137 simultaneous kidney-pancreas transplants were performed, 123 in Brazil, 6 in Argentina, 3 in Uruguay, 2 each in Colombia and Mexico, and 1 in Chile. In addition, 1 cardiorenal transplant (Argentina) and 1 liver-renal transplant (Chile) were reported. In conclusion, the incidence and prevalence of renal replacement therapy continued to grow. Prevention of chronic kidney disease and an integrated approach of affordable dialysis and transplantation are urgently needed in the region. (*Ethn Dis.* 2009;19[Suppl 1]:S1-3-S1-6)

Key Words: Latin America, Renal Replacement Therapy, Hemodialysis, Peritoneal Dialysis, Transplantation

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INTRODUCTION

Latin America is a region made of a conglomerate of nations that share their common Latin ancestry and the Spanish or Portuguese language. It includes the nations from Central and South America, Mexico and the Spanish-speaking islands in the Caribbean. The estimated population, largely of Caucasian origin, is 554,971,000 and has an annual growth of 1.3%. Six percent of the population is aged >65 years.¹ It is a region full of contrasts, both in ethnicity and economic development. In Brazil, Blacks and persons of mixed race make up a sizable part of the population; in Bolivia, Peru, and Guatemala, the indigenous populations make up the larger part of the population. The income per capita for the region is $\approx \$4000$, far from the income reported in developed nations such as Italy (\$30,250, Spain (\$25,250) and the United States (\$43,560). It varies from \$1,010 USC in Bolivia to \$10,560 USC in Puerto Rico. Life expectancy for the region is 72.2 years, from 64.8 years in Bolivia to 78.9 years in Costa Rica.² Similar variations are reported for the human development index. It is 0.797 for the region, from 0.663 in Guatemala to 0.863 in Argentina.³

METHODS

The Latin American Dialysis and Transplant Registry, a committee of the Latin American Society of Nephrology and Hypertension (SLANH), has been in operation since 1991. It is responsible of collecting data on end-stage renal disease (ESRD) among the 20 member countries of SLANH, which make up 97% of the

region's population. It has published 14 reports.⁴⁻¹⁶ The methods of data collection have been reported elsewhere.⁴ In the present study we report the data for the year 2005 and the trends observed in renal replacement therapy (RRT) in the region.

RESULTS

Renal Replacement Therapy (RRT)

By December 2005, a total of 257,974 patients were on RRT, for a prevalence of 478.2 cases per million population (pmp); 147,158 (57%) were on hemodialysis, 58,251 (23%) on peritoneal dialysis, and 52,565 (20%) had a functioning kidney graft. The prevalence of RRT continued to grow at a rate of $\approx 6\%$ annually. However, the distribution by treatment modality has not changed in the last 5 years.

Dialysis

From 1992 through 2005, hemodialysis continued to be the treatment of choice in the region, except for in Mexico, Nicaragua, El Salvador, the Dominican Republic, and Guatemala, where peritoneal dialysis predominated. Peritoneal dialysis was also common in Panama (41%), Costa Rica (40%), Honduras (39%), Colombia (38%), and Bolivia (31%). The percentage of patients on peritoneal dialysis in Mexico, the largest in the region, declined from 90% of the dialysis population in 1997 to 70% in 2005. A similar trend was observed in Colombia.

The lowest prevalence of RRT was reported from Bolivia, Honduras, El Salvador, Guatemala, Nicaragua, and the Dominican Republic (Table 1). The

Table 1. Prevalence of hemodialysis, peritoneal dialysis, and patients living with a functioning kidney graft, 2005

Country	Population	N			Prevalence, PMP		
		HD	PD	KG	HD+PD	KG	RRT (all modalities)
Argentina	38,592,000	22,053	858	5272	593.67	136.61	730.28
Bolivia	9,427,000	751	334	498	115.09	52.83	167.92
Brazil	187,597,000	64,306	6566	23,873	377.79	127.26	505.05
Chile	15,661,075	10,693	673	2794	725.75	178.40	904.15
Colombia	42,090,502	9330	5619	3466	355.16	82.35	437.51
Costa Rica	4,322,000	345	233	887	133.73	205.23	338.96
Cuba	11,369,000	1834	114	690	171.34	60.69	232.03
Ecuador	13,215,000	2520	160	192	202.80	14.53	217.33
El Salvador	6,875,000	476	968	364	210.04	52.95	262.98
Guatemala	12,700,000	730	915	340	129.53	26.77	156.3
Honduras	7,347,000	143	92	13	32.00	1.77	33.76
Mexico	106,147,000	14,861	37,850	10,152	496.58	95.60	592.25
Nicaragua	5,483,000	58	126	11	33.56	2.01	35.56
Panama	3,228,000	467	322	284	244.42	87.98	332.40
Paraguay	6,216,000	400	3	98	64.83	15.77	80.60
Peru	26,152,265	4665	877	430	211.91	16.44	228.36
Puerto Rico	3,915,000	3669	341	685	1024.27	174.97	1199.23
Dominican Republic	9,100,000	352	502	201	93.85	22.09	115.93
Uruguay	3,455,000	2187	182	614	685.67	177.71	863.39
Venezuela	26,575,708	7318	1516	1701	332.41	64.01	396.45
TOTALS	539,467,550	147,158	58,251	52,565	380.76	97.44	478.20

HD = hemodialysis, PD = peritoneal dialysis, KG = kidney graft, RRT = renal replacement therapy, PMP=per million population

highest prevalence was reported from Puerto Rico (1,024 pmp), Chile (726 pmp), and Uruguay (686 pmp).

Argentina, Brazil, Colombia, Mexico, and Venezuela reported prevalence rates between 300 and 600 pmp for RRT. Although the prevalence has increased for all treatment modalities, the highest increment was observed mainly for hemodialysis.

Likewise, incident rates for RRT have steadily increased over the years. Thirteen countries, which make up 93% of the region's population (Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Paraguay, Peru, Puerto Rico, Uruguay, and Venezuela), reported their incidence rates, with the highest rates observed in Puerto Rico (310 pmp), Mexico (304 pmp), Brazil (172 pmp), Chile (152 pmp), Argentina (143 pmp), and Uruguay (140 pmp). The lowest rates were observed in Bolivia (43 pmp), Paraguay (32 pmp), and Ecuador (17 pmp).

Diabetes remained the leading cause of ESRD. The highest incidence was reported in Puerto Rico (65%), Mexico

(51%), Venezuela (42%), and Colombia (35%). Reflecting the aging of the population, 44% of incident patients were aged >65 years.

Renal Transplantation

The transplantation rate in the region continued to increase, from 3.7 pmp in 1985 to 15 pmp in 2005. Currently, renal transplantation is common practice in all countries in the region. The number of transplantations performed in 2005 was 7968, for a total of 98,541 since the first transplant was performed in Argentina in 1957. Brazil and Mexico (which together represent 54% of the region's population) have done 63% of all kidney transplants reported in the region. However, the leading countries per million population are Uruguay (33 pmp), Puerto Rico (28 pmp), and Argentina (21%), followed by Mexico (19 pmp) and Brazil (18%). The lowest activity was reported in Honduras (0.3 pmp), Paraguay (0.5 pmp), and Nicaragua (1 pmp).

Close to 50% of transplants came from cadaver donors; this practice is

widely accepted in Uruguay (96%), Peru (92%), Chile (89%), Puerto Rico (80%), and Argentina (74%). It is not practiced in El Salvador, Honduras, Nicaragua, or the Dominican Republic. In Peru, though not legally forbidden, the Peruvian Social Security System (EsSALUD) has a policy against accepting living donors. A total of 137 simultaneous kidney-pancreas transplants were performed in 2005: 123 in Brazil, 6 in Argentina, 3 in Uruguay, 2 each in Colombia and Mexico, and 1 in Chile. In addition, 1 cardiorenal transplant (Argentina) and 1 liver-renal (Chile) transplant were reported.

Although the number of transplants has increased over the years to 15 pmp, it is not enough to satisfy the growing number of patients on the waiting list. There are 44,998 (99 pmp) patients in 11 countries waiting for a kidney.

Access to RRT

All treatment modalities are available in the region. However access to RRT varies widely in the region. It is universal in Argentina, Brazil, Chile, Cuba, Puerto

Rico, Uruguay, and Venezuela. In these countries, the prevalence rates for dialysis (553 pmp), renal transplant (18 pmp), and organ donation (9 pmp), are the highest in the region. They represent 54% of the region's population and have 90% of the patients on the waiting list. In countries like Colombia, Mexico, Peru, and Paraguay, access to RRT is limited to those with social security or to those who can afford private medicine. In Bolivia, where it is reported that close to 50% of the population have access to RRT, dialysis is delivered inadequately. Only 35% of the hemodialysis population receives three dialysis sessions per week, and only 14% of the patients on peritoneal dialysis receives 4 two-liter exchanges per day. It is not surprising that the annual mortality rate on dialysis is >70%. Furthermore, no public hospital practices kidney transplantation.

DISCUSSION

Although the incidence and prevalence rates of RRT continued to increase, they were lower than those reported in developed nations. For example, prevalence rates are far from those in the United States (1556 pmp)¹⁷ and Japan (1943 pmp).¹⁸ However, in countries like Puerto Rico, Uruguay, and Chile, the prevalence rates are closer to those reported in developed countries like Italy (889 pmp)¹⁹ and Spain (898 pmp).²⁰ The wide variation in acceptance and prevalence rates in the region is most likely due to financial limitations rather than to the true prevalence of ESRD. In any case, the number of patients on RRT continued to grow. This could be explained in part by the aging of the population and the rising prevalence of diabetes in the region. Also, in countries like Uruguay, Argentina, Brazil, Chile, Colombia, and Ecuador, the annual mortality rate for dialysis has improved, currently ranging between 11% and 17%. In addition, access to RRT has increased in countries like Bolivia and

Paraguay. The distribution by treatment modality has not changed during the last 5 years, and hemodialysis continues to be the treatment of choice in the region, except in Mexico, Nicaragua, El Salvador, the Dominican Republic, and Guatemala. Noteworthy is the fact that the percentage of patients on peritoneal dialysis in Mexico continues to decline from 95% of the dialysis population in 1997 to 70% in 2005. This is largely due to the intensive promotion of hemodialysis by the healthcare industry, both in the public and private sectors. The transplantation rate in the region continued to increase, but not enough to satisfy the growing demand placed by close to 50,000 patients waiting for a kidney. Although close to 50% of the transplants are from cadaver donors, this practice varies widely in the region. The actual number of patients with a functioning kidney graft is not known and the number reported is only an estimate.

These data indicate that the number of dialysis and kidney programs continues to be insufficient to cover the growing demand for dialysis and transplantation. Public policy for the prevention and treatment of this disease is lacking in most of the countries. Disparities in access to RRT continue to be a serious problem in the region. Finally, the registry continues to be the only reliable source of information on RRT in Latin America.

Conclusions

The incidence and prevalence of RRT in Latin America continue to grow. Diabetes is the leading cause of renal disease, particularly in Puerto Rico and Mexico. Renal transplantation is increasing but is still insufficient to match the growing demand of patients on dialysis. Prevention and an integrated approach of affordable dialysis and transplantation are urgently needed in the region to manage renal disease.

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