

THE LATIN AMERICAN DIALYSIS AND TRANSPLANTATION REGISTRY (RLDT) ANNUAL REPORT 2004

Introduction: The Latin American Dialysis and Transplantation Registry (RLDT) includes 20 national affiliates. Data are provided annually by delegates designated by the national affiliate or by the Registry's Coordinating Committee.

Results: Prevalence of persons on renal replacement therapy (RRT) has increased from 192 patients per million population (pmp) in 1992 to 424 pmp in 2003, a 10% annual increment. Fifty-six percent were on hemodialysis, 23% on peritoneal dialysis, and 21% had a functioning graft. The highest prevalence was observed in Puerto Rico, and the lowest in Ecuador. Hemodialysis was the preferred treatment modality, except in El Salvador, Mexico, and Guatemala. Incidence rates varied widely; they were high in Puerto Rico (336 pmp) and Mexico (275 pmp) and low in Costa Rica (24 pmp) and Ecuador (14 pmp). Diabetes was the main reported cause of end-stage renal disease (ESRD); it caused from 21% (Uruguay) to 65% (Puerto Rico) of cases. Forty percent of incident patients were >65 years old. Access to RRT is universal in Argentina, Brazil, Cuba, Puerto Rico, Uruguay, and Venezuela but restricted in countries like Mexico and Paraguay. Main causes of death on dialysis were cardiovascular (44%) and infection (26%). Transplantation rates increased from 3.7 pmp in 1987 to 13.7 pmp in 2003, mostly from living donors (55%). The number of transplants reached 69,181 grafts.

Conclusion: Prevalence of RRT has increased over the years; diabetes has become the main cause of ESRD, and cardiovascular disease is the leading cause of death on dialysis. Transplantation rates, although increasing, have not matched the growing population on dialysis. Programs to promote renal health in the region are urgently needed. (*Ethn Dis.* 2006;16[suppl 2]:S2-10-S2-13)

Key Words: Epidemiology, Renal Failure, Prevalence, Incidence, Kidney Transplantation

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INTRODUCTION

Latin America represents a group of nations that share a common Latin ancestry and language (Spanish and Portuguese). Most of the population is Caucasian, descendants of Spanish and Portuguese immigrants, and "Mestizos" (a mixture of European and Indian), except in some countries like Bolivia, where the largest percentage of the population consists of local ethnic groups. Latin America includes Mexico to the north, all countries from Central and South America, and the Hispanic Caribbean Islands. It has an estimated population of 531.4 million inhabitants with a 1.5% annual growth; 6% of the population is >65 years of age.¹

The Latin American Society of Nephrology and Hypertension's (SLA-NH) Dialysis and Transplant Registry includes 20 national affiliates with an estimated population of 525,953,076 inhabitants, representing 99% of the total population. These countries show extreme disparity in social and economic resources. In 2003, the income per capita varied from US \$920 in Bolivia to US \$10,950 in Puerto Rico.² Life expectancy was 72.1 years, ranging from 64 years in Bolivia to 79 years in Costa Rica, and the human development index varied from 0.649 in Guatemala to 0.853 in Argentina, with a regional average of 0.777.³

METHODS

The registry was founded in 1991. Since then it has released 10 reports.⁴⁻¹³ Data are provided by a delegate desig-

nated by the national affiliate or directly by the registry's coordinating committee. Annually, information on the number of incident and prevalent patients on dialysis is reported to the central office. Most of the national registries are voluntary. Transplant data are obtained and shared by the Latin American and Caribbean Transplant Society.

RESULTS

Renal Replacement Therapy (RRT)

Although not universal, the data collected over the years have improved our knowledge on RRT in Latin America and have also promoted the organization of new renal registries in the region. Likewise, data collection has made possible analysis of trends in the epidemiology of end-stage renal disease and its treatment in the region and comparison of results with registries globally.

By December 2003, 201,830 patients were on RRT for a prevalence of 424 cases per million population (pmp); 112,442 (56%) were on hemodialysis (HD), 47,179 (23%) on peritoneal dialysis (PD), and 42,209 (21%) had a functioning kidney graft. The prevalence has steadily increased an average of 10% annually over the last 10 years (Fig. 1). If this trend continues, the number of patients might reach 750 pmp by the year 2010. However, we should be cautious when interpreting these results. First, not all countries report every year. In the present report, data from those countries with missing data for the years 2000 and 2001 have

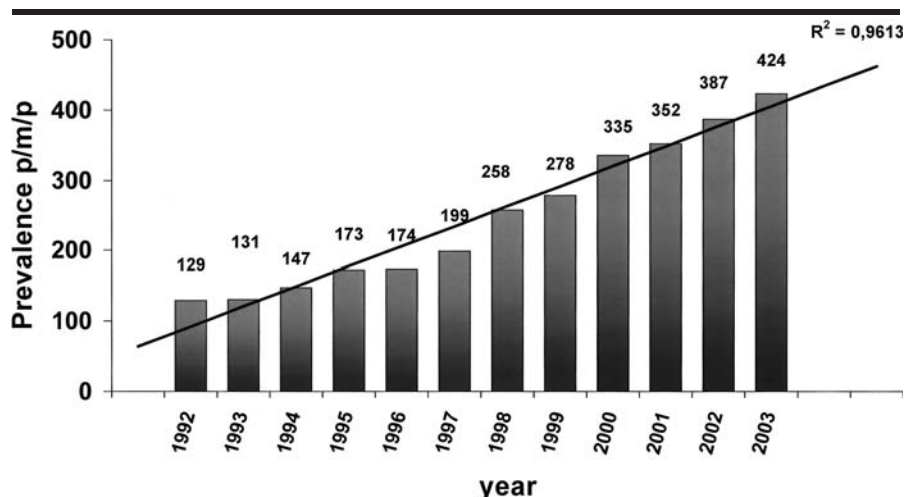


Fig 1. Prevalence of renal replacement therapy (all modalities), 1992 to 2003. The straight line indicates the tendency

not been included. Second, dialysis data from some countries like Mexico are estimations based on local registries. Finally, in most countries the data on patients with a functioning graft are incomplete. The only country where the prevalence has leveled off is Puerto Rico, where the prevalence of RRT has remained constant at ≈950 patients pmp for the last 4 years, close to the number reported in the United States.

Dialysis

Based on data from 14 countries reporting in the year 2003, the prevalence of patients on dialysis was 279 patients pmp. Hemodialysis (HD) continues to be the treatment of choice in the region, except in Mexico, El Salvador, and Guatemala, where PD represents 80%, 74%, and 58%, respectively, of their dialysis population. Colombia (40%) and Costa Rica (34%) also have a significant number of patients on PD. The largest prevalence rates were seen in Puerto Rico (894 pmp) and Uruguay (679 pmp) and the lowest in Costa Rica and Uruguay (<100 pmp); otherwise, prevalence rates ranging between 300 and 600 pmp were reported in countries like Argentina, Brazil, Chile, and Mexico (Fig. 2). Twenty-one percent of the

patients were reported alive with a functioning graft. A linear correlation was observed between the prevalence of RRT and the income per capita ($r^2 = .62$) for the countries. However, when Puerto Rico, whose income per capita is above the regional average, was excluded from the analysis, the correlation was less significant ($r^2 = .38$).

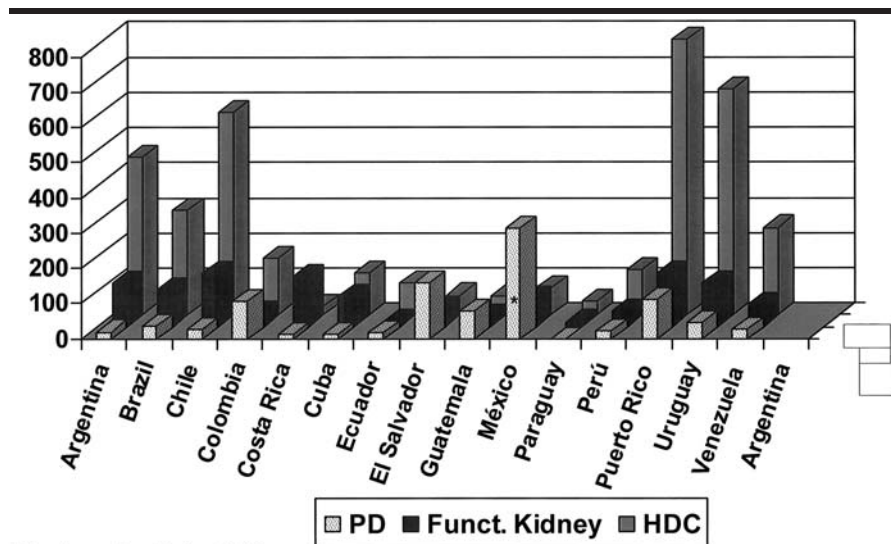
Likewise, acceptance rates varied widely. Higher rates were registered in Puerto Rico (336 pmp), Mexico

(275 pmp), Chile (127 pmp), and Uruguay (131 pmp), while Costa Rica (24 pmp) and Ecuador (14 pmp) reported the lowest incidence rates (Fig. 3).

Diabetes mellitus continues to represent the leading cause of renal failure in the region. However, its frequency varies within the region. Higher frequencies were registered in Puerto Rico (65%), México (60%), Venezuela (37%), and Ecuador (30%). In addition, the percentage of patients >65 years of age continues to increase, representing >40% of the incident population, with a consequent rise in the number of comorbidities observed in this group of patients.

Mortality comparisons on dialysis between the years 1991–1999 versus 2000–2003 showed that cardiovascular disease remains the leading cause of death, representing 44% of deaths, followed by infectious complications (26%).

Fifteen countries reported a total of 1,793 HD centers, representing one center for every 274,681 inhabitants. While dialyzer reuse is routinely practiced in Argentina, Brazil, Chile, Cuba, Paraguay, Peru, and Uruguay, this is not done in Costa Rica, Colombia, Guate-



*Guatemala: Data 2002

Fig 2. Point prevalence by treatment modality in 2003. Data from Guatemala from 2002. HD=hemodialysis; PD=peritoneal dialysis; FKG=functioning kidney graft

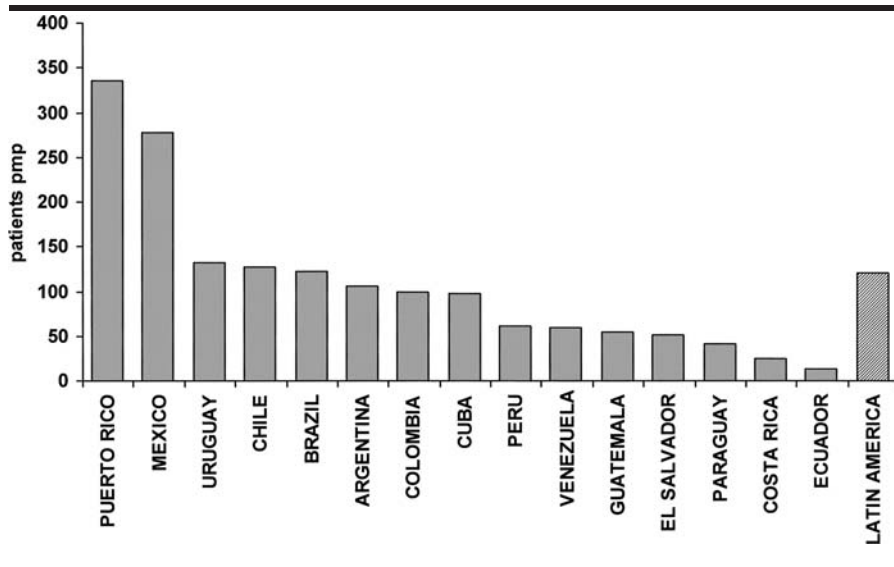


Fig 3. Acceptance rates by country. pmp = per million population

mala, and Venezuela. In some countries, like Ecuador and Puerto Rico, the practice of reuse is not widely established. In Mexico, <20% of the treatments are done using a reused dialyzer, mostly in privately owned HD units. As a whole, PD represents only 23% of the dialysis population, although it is the predominant treatment modality in Guatemala, El Salvador, and Mexico.

Transplantation

Kidney transplantation has been in practice in Latin America since the late 1950s. The first transplant was performed in Argentina in 1957, followed by Mexico (1963), Brazil (1964), Colombia (1965), Chile (1966), Venezuela (1967), Costa Rica (1969), and Ecuador (1974). It is now a well-established procedure among the 20 national affiliates of SLANH.

The rate of transplantation has increased from 3.7 pmp in 1987 to 13.7 pmp in 2003, a significant (350%) rise (Fig. 4). In 2003, 6,373 transplants were reported by 10 countries, nearly half of them from Brazil. In the last two years, the highest rates were reported by Costa Rica (24 pmp), Puerto Rico (21.5 pmp), Chile (19.8 pmp), and Cuba (19.5 pmp), while lower rates

were observed in Guatemala (3.7 pmp), Peru (2.3 pmp), Paraguay (0.4 pmp) and Honduras (0.3 pmp).

More than half of grafts come from living donors, although in countries like Argentina, Chile, Colombia, Cuba, Puerto Rico, Uruguay, and Venezuela, most kidney transplants are done from deceased donors. Combined kidney-pancreas transplantation is offered in Argentina, Brazil, Chile, Colombia, Mexico, and Cuba.

Access to RRT

Access to RRT is universal in Argentina, Brazil, Cuba, Puerto Rico,

Uruguay, and Venezuela. However, in countries like Peru and Paraguay, only one fourth of patients with renal failure have access to dialysis.

Prevalence and incidence of RRT are lower in Latin America than in the developed world. Since this finding is not likely due to a lower prevalence of renal failure, other factors might explain these differences, although an inaccurate registry of patients on dialysis cannot be excluded. Among these factors are local healthcare systems that limit access to dialysis for the poor, as recently reported in Mexico.¹⁴

Finally, our data indicate that the number of programs is insufficient to cover the growing demand for dialysis and transplantation. Furthermore, in many Latin American countries, a public policy for the treatment of this disease is lacking, and dialysis for all will be unaffordable in the near future. Therefore, only through prevention can we face this catastrophic illness.

CONCLUSIONS

The prevalence of RRT is increasing at a higher rate than the population growth in the region, and this situation is not likely to ease in the near future. Diabetes has become the leading cause of renal disease, followed by hypertensive nephropathy. Incident patients are

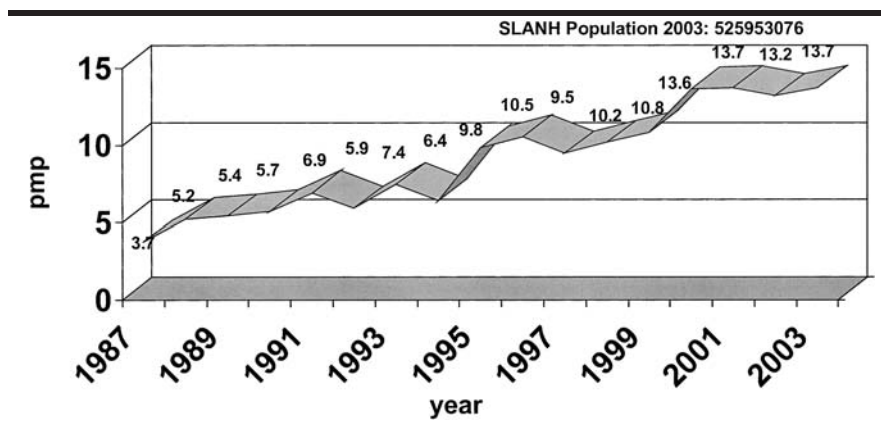


Fig 4. Kidney transplant rates, 1987–2001. pmp = per million population

older and have more co-morbidities. Cardiovascular disease remains the main cause of death on dialysis, followed by infection. Renal transplantation, although increasing, has not matched the growing number of patients on dialysis. As in most developing nations, access to RRT is unequal. Public programs for early detection, prevention of progression, and treatment of kidney disease are urgently needed in Latin America.

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AUTHOR CONTRIBUTIONS

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Data analysis interpretation: Cusumano, Garcia, Lavorato

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Statistical expertise: Garcia

Acquisition of funding: Cusumano, Hermida

Administrative, technical, or material assistance: Cusumano, Di Gioia

Supervision: Cusumano, Di Gioia, Lavorato