

MEETING REPORT: PREVENTION STRATEGIES FOR CHRONIC KIDNEY DISEASE IN LATIN AMERICA

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The first John H. Dirks Renal Disease Prevention meeting, “Prevention Strategies for Chronic Kidney Disease in Latin America: A Strategy for the Next Decade” was held in Villarica, Chile, November 22–24, 2005. There was a special dedication to the late Dr Jaime Herrera-Acosta, who dedicated his life to improving nephrology in Mexico and Latin America. The meeting was attended by 38 representatives from Latin America, Spain, Canada and the USA. Organized by the International Society of Nephrology (ISN) and Latin American Society of Nephrology and Hypertension (SLANH), and endorsed by the Pan American Health organization (PAHO), this was the first such continental meeting in Latin America.

The goal was to define the state of CKD and its treatment in Latin America and compare it to the global perspective (Couser, Dirks, Eknoyan and Bellorin-Font). Rojas of PAHO and Cusumano gave the Latin American overview, using figures from the Latin American Registry of Dialysis and Transplantation. This was done in the context of the (SLANH) Modelo de Salud Renal led by Santos Depine and Raphael Burgos, and especially the late Amilcar Challú.

All countries (except Puerto Rico) in Latin American and the Caribbean region, with a population of 540 million and an average lifespan of 72.1 years, are low or middle-income nations. The middle-income countries are Uruguay, Chile, Mexico, Brazil, Argentina, Venezuela and Costa Rica and the low-income group is comprised of Paraguay, Bolivia, Ecuador and the Central American countries. Overall, the disease burden has shifted from communicable diseases towards chronic diseases.

The Effects of Obesity, Diabetes and Hypertension

Urbanization, increased life span, changed diets and declining physical activity has resulted growth of chronic diseases caused by hypertension, kidney disease and diabetes. In an overview presented by Correa-Rotter on obesity and diabetes in Latin America, he reported that between 2000 and 2030 diabetes prevalence will increase by 248%.¹

In most countries the traditional diet, high in complex carbohydrates, has been replaced by cheaper, refined foods. Soft drinks high in sugar are reportedly consumed at the rate 1.5 liters per person per day in Mexico, where obesity rates now exceed 30%. Perhaps not surprisingly, while chronic diseases accounted for 10% of all mortality in 1949, they accounted for 50% in 1999. As late as 1993 the prevalence of diabetes was 6.7% while in 2000 it was 8.2%, a 22% increase. Diabetes rates in the Caribbean, Mexico and Cuba are similar to those in the USA, and while slightly lower in Central America, are rising.

In Latin America and the Caribbean as a whole 35–55% of all deaths are attributable to heart disease and strokes. Hypertension has increased to about 27% of the population. In Mexico, hypertension rates increased from 10% in 1933 to 31% in 2002. It is estimated that about 51% of those with hypertension in Latin America are identified (Rodriguez-Iturbe) and of these, 33% are treated and 23% are controlled. In Venezuela, Ecuador and Bolivia, less than 10% are controlled.

Zatz reported on an interesting transition Brazil. In 1987, 42% of patients in dialysis centers had end-stage renal disease (ESRD) due to glomerulonephritis versus 23% due to hypertension and diabetes, whereas in 2004 18% were due to glomerulonephritis and 72% to hypertension and diabetes. Various forms of glomerulonephritis still dominate in the poorer countries.

Country Reports

Reports on kidney disease and ESRD in particular were given for 15 Latin American countries. Assuming that kidney failure rates are similar across countries, variable RRT rates indicate that many are going untreated.

- More than 182,000 patients in Latin America are currently treated with renal replacement therapy (RRT).² There are 1,892 hemodialysis centers, or one per every 282,318 inhabitants. Brazil, the largest country in Latin America, has 596 dialysis units, in the Dominican Republic there are 24, and some countries have fewer than ten.
- Treatment for ESRD is most available in Uruguay (Massuchi), Cuba (Almaguer), Chile (Mezzano) Argentina (Massari), and Puerto Rico (Burgos), fairly available in Mexico (Correa-Rotter and Garcia-Garcia) and Brazil (Gordan and Zatz), and relatively unavailable in the rest of the region. In Venezuela one study showed that only 15% of those with CKD have access to treatment
- There is a general correlation between gross national income per capita (GNI) and rates of ESRD.³ In Uruguay ESRD rates are 916 per million of population (pmp) and in Chile 685 pmp while in the Dominican Republic (Mena) it is 103 and in Bolivia (Plata) 63. In Guatemala (Lou) it is estimated that less than 35% of ESRD patients are diagnosed and treated.
- Uruguay (916 pmp) and Puerto Rico (1000pmp), with the highest average incomes and universal access to RRT, have the highest rates.
- Brazil has only 390 dialysis pmp, however, when expressed in terms of dialysis patients/GDP it's numbers are higher than Japan and the USA.
- In Perú (Hurtado), about 30% of the population has access to RRT, in Paraguay 25%, and in Colombia (Gómez) 56.2%. In Bolivia (Plata) only 32% have access and patients in peritoneal dialysis are frequently treated with an intermittent modality given once or twice a week.⁴
- Costa Rica (Cerdas) has a deliberate policy of transplantation (24.2 pmp) over dialysis (60 pmp).
- Mexico is the only country in Latin America, and one of the few in the world, that treats more patients in peritoneal dialysis than hemodialysis

Availability of Transplantation

Since the first kidney transplant was done in Latin America in 1957, transplant programs have become available in all the 20 SLANH countries. There were more than 48,450

patients with a functioning renal transplant in 2004 (Cusumano). The number of functioning kidney grafts has been rising, although not nearly fast enough to keep up with the need. In 2004 nearly 7,600 transplants were performed in Latin America.⁵ Within the region, transplant rates vary widely. Uruguay (27 pmp), Costa Rica (24.2) and Cuba (22) are well above the Latin American average of 12.7 pmp, while Peru (2.3) and El Salvador (Torres) (4.1) are well below. By comparison, the rate in North America is 83.9 pmp.⁶

Access to Health Care

In general the share of national budgets allocated for health care is lower than in the developed world and none has enough RRT capability to cope with the increasing demand. Even in those countries with universal access facilities and nephrologists would be overwhelmed if all cases of kidney disease were diagnosed and treated. In Venezuela, it is estimated that no more than 50% of those with some level of kidney disease are identified.

In most countries a large portion of the population has no health insurance and individuals are effectively cut out of the system. Access to health care is universally available in countries such as Cuba, Uruguay, Argentina, Costa Rica, and Brazil while in Bolivia only 32% and in the Guatemala only 20% have access.

Data and Research Capacity

Data on causes, incidence, prevalence, and availability of treatment are either patchy or entirely lacking. A project needs to be undertaken to create a set of recommendations and regulations on how to do data collection. More epidemiologists need to be trained. Ideally, by working with international organizations such as ISN, SLANH, PAHO, WHO and the World Bank, as well as national ministries of health, the quality of the data could be improved and its importance made known to governments, whose support for such a project is essential.

- A recent study on the Toba aboriginals in Argentina/Paraguay (Massari and Bianchi) was the first observational study on the prevalence of kidney disease, obesity, hypertension and diabetes done on an aboriginal population in South America. While

the rates of diabetes were low (2.1%) the study revealed a high prevalence of proteinuria, hypertension concurrent with proteinuria and obesity, and 24.3% showed CKD (Stages 1–3).⁷ This contrasts sharply with the Pima Indians of the southwest USA who have diabetes rates of 51.4%.⁸

- Cuba is involved in major detection and treatment studies on the Isla de la Juventud, an island of 90,000 people. Risk factors for kidney disease have been found in 27.5% of the population

In some regions of Central America toxic nephropathy is attributed to indiscriminate use of pesticides and fertilizers yet there is a lack of rigorous scientific studies to confirm this hypothesis. In Guatemala, the incidence of renal tubular defects in newborns may be higher than anywhere in the world, and should be examined. There have been too few epidemiological studies to support national initiatives and programs for either treatment or prevention. The Dialysis Registry and the Renal Transplant Registry of Uruguay is a notable exception.

Capacity Building

There is a lack of sufficient infrastructure and human resources in all areas of health care. The shortage of nephrologists, general physicians, health care technicians and epidemiologists is a major problem. Bolivia has one nephrologist for every 333,000 people. In Paraguay, with a population of 6 million, there are 35 nephrologists, but they are almost all located in the capital city, Asunción. There are 31 nephrologists in El Salvador for a population of nearly 7 million, but 60% of them live in the city of San Salvador. The shortage of nurses is endemic throughout Latin America.

There is both a shortage of qualified laboratories and a need for standardization to ensure the validity of laboratory determinations. When screening is done, guidelines need to be established on what to measure (i.e. creatinine, urine protein, GFR) and what levels correspond to the several disease stages that define specific program directives for referral and treatment.

Strategies for Prevention—Three Examples of Global Leadership

A fascinating model created by Zatz showed that doubling the current annual transplantation rate in Brazil from 3,000 to 6,000 would reduce the increase in the number of patients on dialysis in 2025 from 110,000 to 90,000. However if one could cut the increase in new ESRD patients by 75% through rigorous implementation of renoprotective measures, the number requiring RRT would plateau within 10 years and then remain constant. This reality reinforces prevention as the only realistic approach for containing the increase in numbers of patients and the costs of ESRD.

Uruguay has established a prevention model that compares to any in the world, including a complete patient registry, and is leading the way in Latin America (Mazzuchi). A program for prevention of kidney disease was established in 2002, followed in 2004 by a program of renal health care (NPRH). With the active support and backing of the Ministry of Health, the medical community and the Uruguayan Society of Nephrology, the aims of the program are to promote education for renal health and healthy lifestyles population wide; to provide renal health care at the primary care level (including the creation of a multidisciplinary team of nephrologists, cardiologists and diabetologists); to promote early diagnosis of CKD in the at risk population, and to support and optimize care, including medication costs, at all stages of CKD. A continuum of care is provided for everyone diagnosed with kidney disease from early identification to the establishment of a therapeutic and follow up plan. Clinical guidelines for CKD and protocols for glomerulonephritis treatment have been established.

A representative of Chile's Ministry of Health (Escobar) presented an impressive and clear understanding of chronic disease, recognizing the government as stewards of health for primary, secondary and tertiary prevention. A needs assessment to define goals, starting with a dedicated conference with the motto "create awareness and secure commitment and resources". All stakeholders must be included in each country to create a sense of ownership and to identify strong leaders as advocates. A full slate of effective interventions is underway for CKD and other chronic diseases. Key factors in health

service organization and delivery were identified. A practical side was to implement first what is feasible.

The meeting concluded with a vigorous discussion on the future of renal care in Latin America. Presently, chronic diseases constitute a significant and increasing economic burden on both the individual and the state, so the best approach for the economies of Latin America is prevention, early detection, and interventions to retard, stop or reverse disease progression. The strategies for doing this exist, as exemplified by the programs in Uruguay, Chile and Cuba. It is hoped that the major outcome of the Villarica meeting will be to point other Latin American countries in a similar direction.

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References

1. Wild, S et al.: Diabetes Care 2004
2. Latin American Registry of Dialysis and Transplantation, SLANH 2005
3. SLANH 2003
4. Latin American Registry of Dialysis and Transplantation, SLANH 2005

5. Latin American Registry of Dialysis and Transplantation, SLANH 2005
6. Latin American Registry of Dialysis and Transplantation, SLANH 2004 (data from 19/20 countries)
7. María E. Bianchi, Eduardo F. Farías, José Bolaño, Peter Christenson, Pablo U. Massari: Epidemiology of renal and cardiovascular risk factors in Toba Aborigines, 2005
8. Fuente: Pan American Journal of Public Health; 10 (5), 2001