Chronic Kidney Disease in Our Farming Communities: Implications of an Epidemic

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For two decades now, cases and deaths from chronic kidney disease (CKD) have been on the rise in parts of the Americas. General prevalence in the Central American region varies from 10% to 16%. CKD-specific mortality is high in several countries: Nicaragua (42.8/100,000 population), El Salvador (41.9), Peru (19.1), Guatemala (13.6) and Panama (12.3). Canada and Cuba have reported the lowest CKD mortality in the hemisphere, and El Salvador's is 17 times that of Cuba.[1]

In El Salvador, our Ministry of Health's report for 2011–2012 compiled data from the hospital network confirming end-stage renal disease as the third cause of hospital deaths for adults, the first cause among men and fifth among women, with a case fatality rate of 12.6%.[2] A major factor contributing to this alarming picture is a new type of CKD not explained by traditional causes (such as hypertension and diabetes), which has struck our farming communities, targeting people and families already living in poor and often precarious socioeconomic conditions. As a consequence, our Ministry of Health and government have acted on several fronts, our main goal to halt this complex and devastating epidemic:

Research into the epidemiology, pathology and causes of this CKD was initiated and continues at the community and hospital levels. While the consensus is that we are confronting a disease multifactorial in origin, certain associations are noteworthy, particularly exposure to agrochemicals (direct and prolonged, or residual from contamination of soil, water and crops), aggravated by harsh working conditions, exposure to high temperatures, and insufficient fluid intake, among others.

Findings thus far describe CKD characteristics in Salvadoran farming communities: 15%−21% disease prevalence and 9%–13% chronic renal failure prevalence. Of the patients studied, fewer than half have diabetes or hypertension, men predominate, and renal damage begins early in life (kidney damage markers found even in children). Women are also affected, whether they work in the fields or not; and people living in highlands and lowlands are all at risk. Environmental and occupational investigations demonstrate presence of pesticides, heavy metals (cadmium and arsenic) in well water, dirt floors in homes, and farmlands (more concentrated in fields under cultivation).

Important results from research at the San Juan de Dios Hospital in San Miguel show the histopathological pattern to be that of a chronic tubulointerstitial nephropathy. Furthermore, extrarenal damage was found not attributable to kidney disease, suggesting this new form of CKD may be a component of a more systemic problem.

Application of public health's precautionary principle underpinned promotion and adoption of government policies to strengthen the regulatory framework for importation, smuggling, storage, sale, advertising, distribution, use and disposal of agrochemicals in accordance with ratified international commitments. A new law restricts importation of certain agrochemicals, particularly important since many of these substances still in use in El Salvador are prohibited in their countries of origin. And risk is multiplied with aerial spraying, indiscriminate use in high volumes or dangerous combinations, or without requisite biosafety measures.

Prevention and health services to confront CKD have been fortified. This includes introduction of surveillance systems and obligatory reporting of CKD cases at the primary care level, as well as broader coverage and better services in at-risk areas to conduct prevention, early detection and opportune treatment, including continuous ambulatory peritoneal dialysis.

In the context of the national health reform, a Specialized Community Family Health Unit was created, a multidisciplinary team with active community participation, integrated into the national public health network and linked to those hospitals with nephrology services.

We have strengthened competencies of health professionals and technicians to address the epidemic, and introduced specialized diagnostic technology. Renal replacement therapy capacity has doubled between 2009 and 2013.

Finally, at the national level, we are promoting intersectoral policies to transition agriculture towards models that protect both human beings and the environment, as well as adoption of all preventive measures related to potential risk factors, whether traditional or nontraditional.

Increasing international awareness and commitments has required overcoming inertia in attention to the epidemic. Although cases of CKD in the region's farming communities were identified as far back as the 1990s, recognition of the urgency to address this grave and complex public health problem has been too slow in coming.

Intense pressure and persistence were needed to put the epidemic squarely on regional and international agendas. A breakthrough came in 2011 when we were able to include CKD as an emergent and pressing health problem at the Regional High-Level Consultation of the Americas on Noncommunicable Diseases and Obesity. In June of the same year, efforts resulted in adoption of the Antigua Declaration at the 34th Ordinary Session of the Council of Ministers of Health of Central America and the Dominican Republic (COMISCA, the Spanish acronym) that committed our governments to include CKD as a health priority in the context of a global mobilization to stem chronic noncommunicable diseases.

Further, Resolution 54/55 at COMISCA's 37th session in 2012 instructed the COMISCA Executive Secretariat to prepare a proposal for comprehensive CKD management, emphasizing prevention and calling on PAHO/WHO to coordinate CKD studies with the CDC and other specialized agencies, led by the COMIS-

CA Secretariat. At the Central American Integration System's 40th Summit the same year, governments once more recognized CKD as a serious health problem (Resolution 8).

The San Salvador Declaration emerged from the 2013 COMISCA ministerial meeting, recognizing Central American tubulointerstitial kidney disease as a major health problem affecting our farming communities, and presenting a framework for action led by the public health sector.[3] This Declaration was proposed by El Salvador's delegation to the 152nd Session of PAHO's Executive Committee as the basis for the concept paper and resolution approved by the Committee, both documents calling for priority attention to addressing CKD in the region's agricultural communities.

Urgent intersectoral work and international support is required to overcome the challenges ahead for Central America's communities, health systems and governments….challenges otherwise overwhelming. Evidence suggests this CKD is a chronic, possibly multisystem, condition affecting the whole person biologically speaking, with profound implications for the patient's psychological state and social relations. The illness is still more complex because it has deep roots in families and communities whose social conditions open the door to the disease, aided by environmental and occupational determinants.

These realities make it indispensable to approach this CKD through a lens that is at the same time systemic, epidemiological, clinical, environmental and social. Generating coordinated research strategies and action across disciplines, sectors, ministries and countries is the only way to place our accumulating knowledge at the service of those affected.

However, the success of such a process, although urgently needed, requires not only exceptional, persistent efforts, but also substantial economic, human and technological resources—resources our countries do not have, even when we dedicate a greater share of our funds to health. In El Salvador, the Ministry of Health budget swelled by 68.4% from 2007 to 2013—reaching US$625.5 million, the largest increase due to the Comprehensive Health Reform begun in 2009 under the new government. From 2009 to 2013, average expenditures on CKD patients, including dialysis, were US$11.4 million annually.[2] For a country with a 2012 GDP of US$23.8 billion, this is unsustainable. For farming families already poor, the costs associated with the disease are just as unbearable, simply submerging those affected deeper into poverty.

To halt the CKD epidemic raging in our farming communities, global/regional awareness and resolutions must be transformed into mobilization and cooperation. Otherwise, in a world of possibilities, we will fail—as nations, health systems, governments, and international agencies. And failure is not an option.

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2. Ministry of Health (SV). Memoria de Labores 2011–2012 [Internet]. San Salvador: Ministry of Health (SV); 2013 [cited 2014 Apr 3]. Available from: http://www.salud.gob.sv/servicios/descargas/documentos/Documentaci%C3%B3n-Institucional/Memorias-de-Labores/. Spanish.
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