Renal Replacement Therapy in the Developing World: Are We on the Right Track, or Should There Be a New Paradigm?

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The advent of successful renal replacement therapy (RRT) has, like few other examples in modern medicine, emphasized the wide breach in health care between developed and emerging nations (1). It is not an overstatement to point out that ESRD may be a devastating medical, social, and economic problem for patients and their families as well as for national health systems in countries that struggle to overcome underdevelopment (1). The study published in this issue of JASN by García-García et al. (2) provides insight into the magnitude of this medical problem in a state of Mexico, describing the complex scenario of those without the benefit of medical coverage by any of the National Social Security programs that provide coverage to approximately 60% of all Mexicans. Although medical institutions such as the Civil Hospital of Guadalajara are making enormous efforts to cover costs of RRT for those who require it, results, as this study documents, are less than desirable because of multiple factors, including lack of adequate education, primary health care, and infrastructure to provide medical care to a large proportion of the population.

It is not surprising that better outcomes are observed in ethnically similar and age-matched patients who initiate dialysis earlier in the course of their disease and with better clinical and biochemical conditions (Hispanic individuals, data from the US Renal Data System) (2,3). Mexican patients had lower hemoglobin, lower calculated GFR, higher serum creatinine, and lower serum albumin. In fact, we previously demonstrated that a lower serum albumin before initiation of peritoneal dialysis is a strong risk factor for mortality (4). These two groups, although demographically similar, are very different in their clinical conditions and severity of renal disease at the time of dialysis initiation (6,7). It is therefore clear that primary and secondary preventive measures that currently are not in place for this population or in other populations of Mexican individuals or regions of Mexico or, indeed, in many other parts of the developing world, unfortunately accounts for a significant proportion of our population (5).

Despite being the 12th largest economy in the world, Mexico, like many other Latin American nations, still has to overcome extreme inequalities that leave a large number of its citizens in extreme poverty. The United Nations ranks Mexico 53rd in terms of human development, yet if individual regions are classified and compared with the global scenario, some can rank as high as the 20th (developed urban areas) or as low 107th (rural underdeveloped southern states) (5). These inequalities are also prevalent within one state or community. With this in mind, what is described by García-García et al. is not a universal scenario in Mexico, and in many instances, renal health care conditions are much better. However, in others, they may be even worse. It is also relevant to point out that state funding, as provided in this case by the Health Secretariat of Jalisco for noninsured patients with ESRD at the Civil Hospital of Guadalajara, may not be available in other cases, and this lack of financial resources may constitute the major obstacle to improving outcomes.

Access to and quality of dialysis programs largely depend on prevailing economic conditions, public health strategies, availability of specialized health care professionals, and adequate infrastructure. Despite large efforts made by the public health system of Mexico (growth of RRT from 140 to >450 patients per million inhabitants from 1992 to 2006), both the current and future scenarios are complex and challenging. During the past 50 yr, Mexico has experienced a demographic transition, with declining fertility and birth rates and a major increase in life expectancy. Coupled to this demographic transition is an epidemiologic one that is characterized by a dramatic increase of chronic noncommunicable diseases, particularly an epidemic of diabetes. This is reflected in the data of García-García et al. that >50% of individuals who required RRT had diabetes, despite a relatively young mean age (43.3 ± 17.8). Even with the implementation of timely RRT and predialytic care, patients with diabetes face a dismal prognosis: <20% are alive after 5 yr of dialysis initiation (6,7). It is therefore clear that primary and secondary preventive measures that currently are not in place for this population or in other populations of Mexican individuals or regions of Mexico or, indeed, in many other parts of the
developing world are an urgent need that could offer a better outcome in terms of morbidity and mortality, as well as improved health at the time of dialysis initiation, for those who do progress to ESRD.

The high cost of RRT constitutes an ethical dilemma in environments where general and preventive medical support is scare or absent. Nevertheless, this does not obviate the need for dialysis and, if possible, renal transplantation for those who require it. However, it may and should shift the paradigm of treatment for renal diseases to increase the emphasis on education, early detection, and preventive strategies and, in general, improved medical care for those at risk (7). For this to happen, we must raise awareness and increase knowledge of risk factors and preventive measures in the general public, primary care physicians, government officials, and policy makers. When a patient faces the need for RRT with severe handicaps as described by García-García et al., poor results with high associated costs are unfortunately entirely predictable.

An additional challenge is posed by the lack of nephrologists and related trained personnel. Although it would be desirable to “recruit more specialists” for centers such as the one that performed this study, in reality, that is not an easy task in settings where primary care providers are insufficient. In Mexico, a nation of $>104$ million inhabitants, there are only 502 board-certified nephrologists and 13 teaching programs (8).

For countries such as Mexico, with significant heterogeneity in terms of human development (education, health, and other services), there is an urgent need to formulate and implement programs and strategies that are tailored according to regional needs yet have an integrated approach to kidney disease. Adequate primary and secondary care of diabetes and other chronic conditions that affect the kidney should prove useful to reduce morbidity and mortality, delay the need for RRT in many patients, improve the clinical condition and outcomes for those who reach the need for this type of therapy, and, most important, reduce overall costs. The alarming data reported by García-García et al. strongly underscore the importance of heeding this message.

**Disclosures**

None.

**References**


See the related article, “Survival among Patients with Kidney Failure in Jalisco, Mexico,” on pages 1922–1927.