Chronic kidney disease

Chronic kidney disease in India: from a resident physician's perspective

N Udayakumar

CKD in developing countries: a silent epidemic

A 54-year-old Indian tricycle rickshaw puller, the sole breadwinner of a family of five, was diagnosed with hypertension during routine evaluation for easy fatigability. On further investigations, he was found to have anaemia, a serum creatinine concentration of 4.6 mg/dl, blood urea nitrogen of 80 mg/dl, an estimated glomerular filtration rate (GFR) of 19 ml/min/1.73 m² of body-surface area and bilateral shrunken kidneys, with loss of corticomedullary differentiation. The patient was advised long-term dialysis or transplantation, for which neither the patient nor the relatives were willing to proceed because of economic constraints, and got the patient discharged against medical advice. This situation clearly epitomises the situation of patients with chronic kidney disease (CKD) in India.

The attention being paid globally to CKD is attributable to five factors: the rapid increase in its prevalence, the enormous cost of treatment, recent data indicating that overt disease is the tip of an iceberg of covert disease, an appreciation of its major role in increasing the risk of cardiovascular disease and the discovery of effective measures to prevent its progression. These factors render CKD an important focus of healthcare planning even in the developed world, but the problems they delineate in the developing world are far more challenging. There are no concrete data on the true incidence and prevalence of chronic renal failure in the developing world. Delayed diagnosis and failure of institution of measures to slow progression of renal failure result in a predominantly young population with end-stage renal disease (ESRD). Some 85% of the world's population live in low-income or middle-income countries, where the clinical, epidemiological and socioeconomic effects of the disease are expected to be the greatest. Data from the US suggest that, for every patient with ESRD, there are >200 patients with overt CKD (stage 3 or 4) and almost 5000 patients with covert disease (stage 1 or 2) according to classification based on Dialysis Outcomes Quality Initiative

(DOQI) guidelines. We have to also understand that the DOQI classification groups many people into CKD 3 and that all of them do not go on to develop ESRD. But unfortunately, the magnitude of the problem in terms of the number of people in each stage is not available from India, as the renal registry was just initiated this year and we lack the statistics regarding the percentage of population in each stage according to DOQI guidelines. Hence, it may take another year to come up with the statistics of how many of our population fall into this group. Similar to India, unfortunately, this type of information is lacking for most other developing countries; the starting of the CKD registry in India this year is a step in the right direction to know about the effect of CKD on the Indian population.

The proposal of World Kidney Day on the second Thursday of March from this year onwards, as suggested by the International Society of Nephrology, is a time of close introspection and aptly epitomises the situation the whole world is facing in combating CKD and in sensitising doctors and public alike towards preventing CKD.

Given pressing medical concerns such as infectious diseases and malnutrition faced by developing countries, why should we even talk about CKD in such places? The fact is that many developing countries are facing a silent epidemic of CKD—a facet of the health transition associated with industrialisation. In fact, in developing countries such as India, non-communicable diseases (eg, coronary artery disease, CKD) are the major cause of mortality compared with communicable diseases (eg, infections in the form of diarrhoea, respiratory tract infections, tuberculosis), in stark contrast with the past decade when communicable diseases formed the bulk of mortality. Moreover, by virtue of its progression to kidney failure and its association with accelerated cardiovascular disease, CKD has profound effects on morbidity, mortality and healthcare costs, as well as important social implications.

Representative estimates of the burden of CKD (defined as a decrease in the

GFR to <60 ml/min/1.73 m² for ≥3 consecutive months) in most developing countries are lacking. However, data from community-based studies in India show an alarmingly high burden. In a study by Agarwal *et al.*,¹ the prevalence of CKD in the adult population was 0.785% or 7852/million. This is just the tip of the iceberg. There could be more people with CKD who are still undiagnosed. Although GFR estimation equations have not been validated in Indian populations, such a burden is consistent with the high prevalence of diabetes and hypertension, the two main risk factors for CKD.

These troubling rates are fuelled in part by increases in sedentary lifestyles in low-income communities, where children spend an average of 4–6 h/day watching television. Moreover, populations in which low birth weight and malnutrition are common may be predisposed to chronic diseases associated with weight gain.² Despite these predisposing conditions, screening for and early detection of CKD, particularly in high-risk patients with hypertension and diabetes, remain grossly inadequate. This failure may be partly attributed to the fact that the healthcare systems in developing countries are geared towards providing short-term, symptomatic treatment. But perhaps an even greater problem is that these high-risk patients remain largely unidentified.

There are hardly any state-funded medical treatment and medical insurance facilities for patients with CKD and ESRD in India. In an analysis by Agarwal only 3–5% of all patients with ESRD in India receive some form of renal replacement treatment.³ The remainder cannot afford the treatment and are lost to follow-up or die. These data speak volumes about the morbidity of patients with CKD in India. Ideally, developing countries would have access to ample resources to set up large-scale, integrated programmes for the prevention and treatment of chronic diseases, as well as dialysis and transplantation units for patients with kidney failure. But in reality, such resources are unlikely to be found. Low-income countries such as India must therefore shift their emphasis from renal-replacement treatment to more cost-effective preventive services. Thus, planning for prevention of CKD on a long-term basis is the only practical solution for India. In India, chronic glomerulonephritis is the most common cause of CKD.⁴ Now, even in India, diabetes and hypertension seem to be increasing and responsible for 40–50% of all cases of CKD.

In our centre, chronic glomerulonephritis was the most common cause

of CKD until about 2 years ago (unpublished data). But, for the past 2 years, diabetes and hypertension have taken over as the leading causes of CKD. This could be the changing facet of CKD, with an increase in diabetes and hypertension in developing countries such as India, caused by change in lifestyle. Screening for these two diseases and CKD is simple and easy to carry out.

SOLUTION

The best approach would be to start screening for CKD in a high-risk group such as first-degree relatives of patients with diabetes, hypertension and CKD. The other solution is to have a public forum to alert the public about the early signs and symptoms of CKD and the need to visit the doctor periodically in patients with risk factors for CKD in the form of diabetes, hypertension and in those with a strong familial history of diabetes, and also have their laboratory parameters such as lipid profile, serum creatinine, urine for albumin/proteins monitored frequently. The public should also be educated about quitting smoking, which would accelerate the progression of CKD. So the best solution is to start a CKD prevention programme, which encompasses all these components. The key issue of funding the programme needs to be explored. Initial funding may come from international

agencies such as the World Health Organization, along with support from the country itself. Ultimately, funding has to be sustained from our own existing healthcare system. In fact, domiciliary treatment has been suggested as the solution for this disease. We may expect to see a fall in the incidence of chronic renal failure if domiciliary treatment is instituted in the future, particularly in a developing country such as India.⁵

The obvious task ahead for health authorities in the developing world is to detect and treat kidney disease at the earliest possible stage. For this purpose, the International Society of Nephrology has designed guidelines adapted for the developing world.⁶ Screening only people deemed to be at high risk may be a viable option when mass campaigns are impossible. Control of diabetes, hypertension, smoking, overweight, infection and pollution—and possibly the use of a single daily pill (POLYPILLTM) containing generic angiotensin-converting enzyme inhibitors, statins, aspirin and folic acid to simultaneously control blood pressure, dyslipidaemia and thrombogenic tendency—should be on the agenda of many developing countries such as India.

CONCLUSION

Patients with CKD have poor outcomes, are costly and have documented poor

quality of life. This situation needs to be changed. The CKD prevention programme, if started, would be the first major coordinated step to achieve this change.

The world owes all its onward impulses to men and women ill at ease. The happy man inevitably confines himself within ancient limits.

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Correspondence to: Dr N Udayakumar, Madras Medical College, Chennai, India; udaykumar81@yahoo.co.in

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