

Chronic Kidney Disease in India: Challenges and Future Outlook.

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INTRODUCTION

The March 12, 2015 will mark the 10th anniversary of World Kidney Day ((WKD), an initiative of the International Society of Nephrology and International Federation of Kidney /Foundation. Since its inception in 2006, WKD has become the most successful effort ever mounted to raise awareness among decision makers and general public about the kidney disease. Each Year, WKD reminds us that kidney disease is common, harmful and treatable. The focus of world kidney day in the year 2015, was on Disadvantaged Population. Recent analysis shows that globally, out of 2.6 million people on dialysis, 93% are residing in high and middle income countries. By contrast, the number of people requiring renal replacement therapy were estimated to be around 4.9 million, suggesting that a significant number of patients died prematurely because of lack of access to treatment facilities.^{1,2,3}

DEFINITION AND BURDEN OF DISEASE

Chronic kidney disease is not a single disease but a group of diseases characterised by low glomerular filtration rate(GFR)($<60\text{ml}/\text{mt}/1.74\text{m}^2$ body surface area)or evidence of kidney disease with relatively preserved GFR; present for more than three months in absence of reversible factors and mostly progressive in nature. The term end stage renal disease (ESRD) represents the late stage of CKD where the accumulation of toxins, fluid and electrolytes normally excreted by the kidneys results in the uremic syndrome and leads to death unless the toxins are removed by renal replacement therapy (RRT) using dialysis or kidney transplantation.

India, like the developed and many other developing countries, has witnessed a sharp rise in the incidence of chronic diseases and resultant mortality during the past few decades. This increasing burden of chronic diseases along with existing burden of communicable diseases is putting tremendous strain on already stretched health services of the country.^{2,3,4} This is leading to, not only an increase in economic cost, but also an increase in the loss of quality adjusted life years(QALY).Till now in India, this has been reasonably documented with respect to cancer, diabetes, stroke and cardiovascular disease which led to initiation of national programs on prevention and control of these diseases.(National program on Prevention and Control of Diabetes, Disease and Stroke, NPCDCS.)^{7,11} Thus diabetes, cardiovascular disease and stroke are well recognised by the public, physicians and the government. However chronic kidney disease (CKD) was till recently unrecognised as a major chronic

disease responsible for economic load to the government. In 1998, World Health Organisation mentioned the ten common causes of death in India and CKD never figured in that document. Similarly, if one looks into the undergraduate medical curriculum considered by the Medical Council of India, there is no mention of CKD as one of the topics to be covered. But if we look into the absolute no of deaths due to CKD, it can be realised that CKD will find a place in ten most common causes of death in India.^{7,8} Further, as most common cause of chronic kidney disease worldwide including India is diabetes and different studies have projected that by 2030, India will have around 79 million patient (leaving the 2nd placed country China far behind with 42 million projected patients)(presently India has around 30 million patients with confirmed diabetes; although actual number is thought to be close to 40 million);one can easily estimate the extent to which our health system is going to be affected by it

Globally, CKD is the 12th cause of death and the 17th cause of disability, respectively.

Until recently, a reasonable estimate of number of persons who need RRT was not possible because of lack of registries or other data collection facilities. The first study, which filled this gap was conducted at a hospital in the city of Bhopal. This hospital was directed by the Supreme Court of India to provide free medical care including RRT to all the victims of methyl-iso-cynate gas tragedy. The average crude annual incidence and age adjusted incidence ESRD rates were determined to be 151 and 229 patients per million population, respectively^{2,3}. A Large study, "Screening and Early Evaluation of Kidney Disease" (SEEK)⁵, a community-based screening program was started in India in 2005 to generate data to determine the prevalence and risk factors for CKD, across 13 academic and medical centres in India^{2,3,4}. The finding from the SEEK study are quite alarming with a very high, 17.4% prevalence of CKD in SEEK- India cohort (presented in the Annual Conference of the Indian Society of Nephrology in 2013). The Indian CKD Registry, a voluntary reporting body of CKD patients data, initiated in June 2005, has 199 contributing centers. The existing registry has the limitation of being hospital-based and thus cannot be described as accurate estimate of population data. Based on the current Indian population of 1.27 billion, even a conservative estimate of disease burden in India would suggest that about 1,650,000 to 2,200,000 people develop ESRD every year. Out of these, only about 10% or less receive renal replacement therapy.

DELIVERY OF ESRD CARE

The delivery of healthcare by the public sector takes place at multiple levels: The most basic units are primary health centres, followed by block and district level hospitals. The university hospitals form the apex and provide specialist care for kidney

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Received on 23.02.15

Accepted on 10.03.15

disease. The majority of nephrology related services are concentrated in expensive private hospitals. There are about 1500 dialysis centres in India (the number is constantly increasing) and number of renal transplantation centre is 166, 35.6% being in four major metropolitan cities^{3,4}.

Availability of the limited resources remains the major hurdle for development of RRT facilities in our country and addition of cost of drugs like erythropoietin and Vit D analogues or post transplant immune suppression raises the RRT cost by almost 100%. The poor clinical status of the patients necessitates the frequent long term hospitalisation. Poor hygiene, hot and humid climate and overcrowding predispose these patients to variety of life threatening infections, thus representing an additional financial burden. The current annual expenditure on healthcare by union and state Govts totals 1.2% of gross national product. The lack of trained manpower also hampers the delivery of quality healthcare.

The constraints in running an effective maintenance dialysis programme leave renal transplantation as the only viable option for ESRD patients. However, transplantation activity falls woefully short of demand; lack of finances, lack of an organised cadaver donor transplant programme are some of the major stumbling blocks. Cadaver donor sources are poorly used because of absence of ineffective organ procurement network, lack of facilities for taking care of potential donors and poor public education. Patients are forced to discontinue expensive drugs after transplantation which leads to high rate of graft loss. The worldwide shortage of organs gave rise to the practise of purchase of kidneys from poor persons by the affluent sections of the society in 1980s and 1990s. The buyers came both from within and outside the country, giving rise to the term 'transplant tourism.' The donor exploitation and substandard medical care provided to recipients prompted the enactment of an act by the Indian parliament in 1994, officially banning this practice. Since then, it has been practiced only clandestinely in some centres in this country.

THE FUTURE OUTLOOK

Even within the constraints imposed by the economy, a few measures can help expand the scope of dialysis. These include indigenous manufacture of dialysis machines, water treatment systems, dialysers, PD fluid bag and low cost cyclers and effective reuse of disposables^{6,8,10}. On the part of treating physicians and specialists, timely preparation of the patient for RRT, including counselling regarding the choice of therapy, management of co morbid conditions, appropriate nutritional interventions, early creation of dialysis access and pre-emptive transplantation when possible, would help in reducing patient morbidity and mortality. Recent years have seen the emergence of discipline of preventive nephrology that emphasises early detection of kidney disease and institution of measures to slow down its progression. Compared

to the rest of the world, the mean age of the patients who require RRT is much lower in our country. This is likely related to the poor availability of healthcare, which delays diagnosis and leads to loss of opportunities to initiate timely preventive measures, such as control of hypertension and dietary modifications, culminating in faster progression to ESRD.

CONCLUSIONS

In the last few years, there has been a significant improvement in the awareness resulting in increasing efforts at both at national and international levels to do advocacy and action in relation to CKD. However, it is obvious that in a country with a population of >1.2 billion, screening the whole population is neither required and nor possible. Thus, we need to concentrate on screening high risk groups for CKD. In addition to patients of diabetes and hypertension, who need regular screening for kidney involvement, first degree relatives of patients with CKD is one such high risk group which needs attention. Soumita et al¹² have shown that such opportunistic screening of first degree relative does show a high prevalence of CKD and its risk factors in family members. At the national level, govt of India has included CKD as one of the components of non-communicable disease (NCD) program activity for current five year plan. In August 2011, a national consultation held at Delhi for NCDs produced a document titled 'Call for action' and included CKD as one of the components requiring planning and action towards control and management.^{5,7,11,12,13} However, quality of healthcare is inextricably linked to the social and economic development of societies and the inequalities in access to RRT will persist while the economic disparities remain.

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