

Diabetic Kidney Disease, We Need to Act Fast

Diabetes is the leading cause of end-stage kidney failure throughout the world in both developed and developing countries.¹ The same is now true of Kashmir Valley also. In a study conducted in 1999 amongst 780 patients of chronic kidney disease in the only nephrology unit of the Valley, chronic glomerulonephritis was the commonest cause of chronic kidney disease constituting 33% of the total number.² But a decade later in another study diabetes was the leading cause of chronic kidney disease and accounting for 33.3% of the total number.³ It is very important to alert doctors, patients and governments to the increasing health and socioeconomic problems due to diabetic kidney disease and its sequelae (1) end stage kidney disease requiring renal replacement therapy, and (2) cardio-vascular death. There is a horrifying lack of awareness of diabetic kidney disease at all levels and we need to emphasize that its management involves prevention, recognition and treatment of its complications. Primary prevention of type 2 diabetes will require massive life-style changes.

Over the past 25 years, the prevalence of type 2 diabetes in the United States has almost doubled, with 3 to 5 fold increase in India, Indonesia, China, Korea and Thailand.⁴ In 2007 there were 24.6 crore people with diabetes in the world, but by 2025 the number is estimated to reach 38 crores. People with impaired glucose tolerance numbered 30.8 crores in 2007, and this will increase to 41.8 crores by 2025.⁵ The increase in prevalence of diabetes will be greater in developing countries. According to WHO India and China will have about 13 crore diabetics by 2025. They will consume about 40% of their countries health-care budget in addition to reducing productivity and hindering economic growth. Here a non-infectious disease poses as serious a threat to the world health as infectious diseases such as HIV/AIDS, tuberculosis and malaria. The problems of diabetes are now a major global public-health concern, especially for the developing world countries like

India. The first step to acting on diabetic kidney disease must encompass public-health campaigns aimed at preventing the development of type 2 diabetes.

Diabetic kidney disease

Diabetes is the primary diagnosis causing kidney disease in 20 to 40% of people starting treatment for end-stage renal disease world wide.⁶ In Australia, the number of new type 2 diabetes patients starting dialysis increased 5-fold between 1993 and 2007.⁷ Between 1983 and 2005 there was a 7-fold increase in the number of new patients starting renal replacement therapy in Japan because of diabetes, accounting for 40% of all new-incidence patients.⁸ Thus, some 30% of the predicted US \$ 1.1 trillion medical costs of dialysis world wide during this decade will result from diabetic nephropathy.⁹

In the United Kingdom Prospective Diabetes Study (UKPDS), the rates of progression of newly diagnosed type 2 diabetics between the stages of normoalbuminuria, microalbuminuria, macroalbuminuria and renal failure were 2 to 3% per year.¹⁰ Over a median of 15 years of follow-up of 4000 participants almost 40% developed microalbuminuria.¹¹ In the DEMAND study of 32,208 people from 33 countries with known type 2 diabetes, 39% had microalbuminuria and prevalence increased with age, duration of diabetes and presence of hypertension.¹² About 30% of the UKPDS cohort developed renal impairment, almost 50% of whom did not have preceding albuminuria.¹¹ Reduced glomerular filtration rate and albuminuria caused by diabetic nephropathy are independent risk factors for cardio-vascular events and death.¹³ Therefore, a strategy to detect early diabetic kidney disease by screening for albuminuria as well as reduced glomerular filtration rate will be of immense help in taking action on diabetic kidney disease.

Problem of lack of awareness of diabetes and diabetic kidney disease

It is a big difficulty to overcome the remarkable lack of awareness among patients about their condition. In population based surveys, for every known diabetic patient, there is at least one more who is undiagnosed in an advanced country - Australia.¹⁴ It is indeed horrifying to note that in Kashmir Valley for every one known diabetic there are about 10 unknown. Overall abnormal glucose tolerance (FPG $\geq$ 100 mg/dl and/or 2 hour post-glucose load $\geq$ 140 mg/dl) was seen in 30.6% in this population based study amongst 3032 subjects screened in all the 6 districts of Kashmir Valley. Though the age-adjusted prevalence of diabetes (known + unknown) in subjects aged 20 to 40 years was only 2.5%, there was a huge load of impaired fasting glycaemia.¹⁵ With ongoing urbanization, this is likely to transform into a diabetes epidemic of the young which should be a point of concern. Only 8.7% of the general population were able to identify diabetes as a risk factor for kidney disease in a study conducted in Australia in year 2008.¹⁶ Very few patients with diabetic kidney disease are aware of their condition, some community surveys put patients awareness of their disease as low as 9.4%, particularly among those with milder impairment even in a country like the United States.¹⁷ Thus public education and awareness is required for acting on diabetic kidney disease in the community.

Management of diabetic kidney disease

There is evidence that early therapeutic intervention in patients with chronic kidney disease or diabetes can delay onset of complications and improve outcomes. Tight control of blood glucose level and blood pressure and lipids significantly reduce incidence and progression of diabetic kidney disease. This was demonstrated by UKPDS¹⁸ and STENO-2.¹⁹ In people with type 2 diabetes, inhibition of the renin-angiotensin-aldosterone system using an angiotensin-converting enzyme inhibitor or an angiotensin receptor blocker decreased the progression from normoalbuminuria to microalbuminuria,²⁰ reduced the progression from microalbuminuria to macroalbuminuria²¹ and slowed the development of end-stage renal disease.²² Thus the use of an angiotensin-converting enzyme inhibitor or angiotensin receptor blocker is now the standard therapy for the patients with diabetic nephropathy as well as glucose, lipid and blood pressure control. This will also prove effective step in tackling diabetic kidney disease and reducing its impact on healthcare system.

To act fast we need to prevent type 2 diabetes, screen for early diabetic kidney disease, increase patient awareness of kidney disease and use angiotensin-converting enzyme inhibitors or angiotensin receptor blockers as first line drugs along with tight glycemic

control, efficient blood pressure control and lipid control. Action should get to primary health care to all higher levels. Prevention, screening and treatment along with increasing awareness in both diabetic patients and those at risk of developing diabetes should be the main focus. We need to implement Kidney Early Evaluation Program (KEEP), a screening program for people at high risk of kidney disease initiated by the National Kidney Foundation (NKF) in the United States, in Kashmir Valley. All kidney disease patients should not only be aware of their disease but should actively be knowing, for example, their blood pressure and the treatment objectives.

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