

Glomerulonephritis contributing to chronic kidney disease

Abstract

Chronic GN leads to CKD in a significant number of cases. Timely diagnosis and proper management of glomerular diseases can prevent the progression of glomerulopathies to CKD and ESRD and can go a long way in reducing the burden of CKD, especially in developing countries. Further research is required to determine the risk factors leading to progression of glomerulopathies to CRF and ESRD.

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Abbreviations: CKD, chronic kidney disease; ESRD, End-stage renal disease; DM, diabetes mellitus; GN, glomerulonephritis; CRF, chronic renal failure; USRDS, united states renal data system

Introduction

Chronic kidney disease (CKD) is becoming a worldwide public health problem.¹ It is reported to be around 10-15% worldwide, with a sharp increase in Asian countries.²⁻⁵ CKD is associated with increased mortality, impaired quality of life, and most importantly, increased healthcare expenditures.⁶⁻¹⁰ If left untreated, CKD will lead to end-stage renal disease (ESRD) necessitating chronic dialysis or renal transplantation. These are the only two options for patients with ESRD. Hence, the attention is focused to diagnose and treat kidney disease at an early stage. A big impediment is relative dearth of nephrology services and facilities in developing countries.¹¹⁻¹⁵ In the context of early recognition and prevention of renal disease, it is important to analyze the prevalent etiological factors of CKD in a particular population. It is well known that the epidemiology and etiology of CKD vary widely, depending on geographic location, race and ethnic background. However, the studies dealing with epidemiology of CKD are fraught with problems related to definition of CKD. Following the initiative of KDIGO for standardizing the definitions of CKD, the studies are becoming streamlined throughout the world and international communication has improved.¹⁶

Few nationwide surveys are available on this topic in the literature. Very few renal disease registries exist in the world to study the nationwide prevalence and risk factors of CKD. The situation is even more pathetic in developing countries.¹⁷ The awareness has increased in recent years regarding CKD and its early diagnosis, especially in developing countries, including Pakistan. However, the majority of these cases require immediate dialysis and etiology largely remains speculative.^{15,18-26} As an example, in a survey of 874 patients with chronic renal failure requiring dialysis, unknown etiology (26.3%) was the most common group.¹⁷ The two most common causes of CKD worldwide are the diabetes mellitus (DM) and hypertension.¹⁻¹⁰ Glomerular diseases also constitute an important cause of growing epidemic of CKD.¹⁷ However, the prevalence and incidence of glomerulopathies varies widely in different parts of the world. Similar to CKD, there are very few national registries for documentation of glomerular diseases at a mass level. Most of the studies on glomerular

diseases are single center or multi-center based. Hence, accurate data on the incidence and prevalence of glomerular diseases is still lacking or at primitive stage in most countries. Moreover, there has been a change in frequency of this etiology of CKD over last 2-3 decades. Chronic glomerulonephritis (GN) was a leading cause in dialysis patients in early 1990s in Pakistan, for example.^{18,19} Chugh from India also found chronic GN as the number one cause of ESRD in their study followed by diabetic nephropathy (14%), chronic tubulointerstitial nephritis (14%) and nephrosclerosis (13%).²⁰

Another study from India also found chronic GN as the predominant cause of ESRD in adult patients (49.4%) followed by diabetic nephropathy (28.4%).²¹ Naicker from South Africa also reported chronic GN as the leading cause of chronic renal failure (CRF) and ESRD (25%) followed by hypertension (20%).²² In contrast, data from United States Renal Data System (USRDS) shows that diabetes is the leading cause of ESRD (42.9%) followed by hypertension (26.4%) and glomerulonephritis (9.9%) in the US population.²³ In mid-2000 study, the glomerular disease constituted only 9.9 % of CRF in Pakistan.¹⁷ In this later study, the cause was unknown in the majority of cases of CRF.¹⁷ Very few of the above studies have mentioned the criteria for the diagnosis of glomerular diseases and the figures may be considered at best as only estimates of the true picture. As suggested by Rizvi et al.¹⁷ the lower incidence of GN may be due to mis-classification of chronic GN cases as hypertensive nephrosclerosis of unknown causes.¹⁷ They included only biopsy-proven cases of GN or where the history was strongly suggestive of chronic GN.¹⁷ All types of glomerulopathies can lead to CKD. However, the rate of progression and the proportion of patients developing CKD vary significantly. It is of utmost importance to diagnose glomerular diseases at an early stage. The cases of GN should also be referred to specialist care for an optimal management.^{24,25}

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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