CLINICAL AND DEMOGRAPHIC PROFILE OF CKD IN NON-DIABETIC PATIENTS
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Abstract
Introduction: The present study mainly focuses on the causes of chronic kidney disease other than diabetes mellitus. The early diagnosis and proper timely treatment of the diabetic patients will result in early prevention of renal diseases and also results in increase in survival rates. The present study aim was to clinically evaluate and check the demographic profile of the patients with kidney diseases.

Materials & Methods: In the present study 137 patients diagnosed with chronic kidney disease who are non diabetic attended/admitted to medical hospital affiliated to Bangalore medical college and institute were included.

Results: The most common etiological factor for the chronic kidney disease was recorded as hypertensive nephropathy. The second most common factor was recorded as glomerulonephritis. The other common symptoms recorded were lower limb swelling and general weakness.

Conclusions: Most common causative factor for the chronic kidney diseases is hypertension. An early diagnosis and detection off the renal problems will lead to appropriate treatment and proper prevention of the progression. This leads to increase in survival rates.

Keywords: CKD, Hypertension, Nephropathy, Non diabetic

Introduction

The collective condition that leads to damage of kidneys and leads to decrease in the ability to keep the body healthy is called chronic kidney diseases. When there is kidney problem the wastes in the body don’t get cleared out and get built up in the blood and make one feel unhealthy. Due to kidney disease there are high risk of cardiac problems and blood vessel diseases.1,2

There are different methods which are used to determine and confirm the kidney damage: histologic evaluation of the kidney, abnormality in the blood and urine sample and abnormal findings on renal imaging. The kidney disease is considered as worldwide health problem. It affects about of millions of people from all ethnic group and racial people. Followed by hypertension the diabetes mellitus is considered as leading cause for chronic kidney diseases.3,4

In the patients with chronic kidney diseases the major cause off mortality is cardiovascular disease. Around fifty percent of patients with CKD dies due to complication arsing due to cardiac problems. The major risk factor for the coronary artery disease in recent times is found to be dyslipidemia. Virchow was the first person to find the assocaition between the kidney diseases and lipids. He described fatty degeneration of renal epithelium in brights diseases in 1860. The incidence of coronary artery disease is seen in 26 percent of dialysis patients.5,6

Hypertension is one of the most common cause for the chronic kidney disease and is considered as one of the risk factor for cardiovascular diseases.7 There are different causes that included glomerular diseases, obstructive uropathy, recurrent renal calculi diseases, cystic kidney diseases, congenital defects of bladder or kidney, tubulointerstitial disease etc. There are different risk factors that included obesity, family history of bladder diseases and old age etc.8 The present study main aim was to focus on causative factors of chronic kidney diseases. Hence the early intervention of such patients will possibly result in early prevention and progression of the renal disease and hence increases and improves the survival rates.

Materials & Methods

Source of data:
The present is the cross sectional study done in the department of medicine in the medical college and hospital. Patients of chronic kidney disease who are non-diabetic and attended/admitted to hospital were included in the study. The institute ethical committee was informed about the study and the ethical clearance certificate was obtained prior to the start of the study. The study period was of 2 years.

Exclusion criteria Patients below the age of 18 years and are known case of diabetes mellitus were excluded. Inclusion criteria Patients with history and physical findings of CKD and biochemical and radiological abnormalities suggestive of CKD were included in the study. Information was collected and detailed history was taken, Laboratory and radiological findings were recorded in the study proforma.
A total of 137 patients were included in the study. The included patients did satisfy the inclusion criteria of the study. All the patients were on diabetic and suffered from chronic kidney diseases. Detailed clinical and familial history of the included patients was recorded. The patients were subjected to required necessary investigations. Chronic kidney disease was diagnosed by clinical examination, biochemical and radiological findings. Staging of the severity of chronic kidney disease was done using MDRD equation. Data was entered in MS Excel and analysis was done using statistical package for social sciences (SPSS).

**Results**

The preset study was done with the aim to evaluate the clinical and demographic profile of CKD in non-diabetic patients. A total of 137 patients were included in the study. Both males and females were included in the study. As per the data collected the males were seems to be more affected as compared to females. There were 95 males and 42 females included in the study. The age range of patients included in the study was from 20 years to 85 years. The age range more common in male was 30 to 39 years and in females the age range was found to be 70 to 79 years.

All the patients inc the study were diagnosed with chronic kidney diseases. The diagnoses included sever hypertensive nephropathy, polycystic kidney diseases, solitary kidney, glomerulonephritis and reflux nephropathy. According to etiology, the study shows that hypertensive nephropathy (63%) is the most common cause of CKD. This is keeping in mind that the study includes only non-diabetic CKD. This is followed by glomerulonephritis (20%).

The clinical symptoms were recorded. Of all the symptoms recorded the general weakness was found to be most wide spread symptoms. It was present in almost all the included patients. Next most common symptom was found to be puffiness of face, next to it was sleep disturbance dysuria and weight loss. The signs were also recorded. The most common sign was found to be pallor seen in almost all the patients, hypertension was the second most sign recorded and pedal oedema was next. The least common signs were found to be pleural effusion and generalised swelling recorded in the sign.

In majority of patients there was moderate elevation of serum creatinine. The severe rise in level in serum creatinine was found in very less patients. Moderate rise in the serum urea was seen in majority of patients and in very less patients there was severe rise in serum urea level. In most of patients the urine albumin levels were high were as in few patients the levels of albumin was found to be nil. In majority of the patients the sodium level was found to be normal, , hyponatremia was seen more commonly than hypernatremia, seen in 20% and 2% of the subjects respectively. As seen with Sodium levels, Potassium levels in 71% of the subjects was seen within normal limits i.e., 3.5-5mEq/L. However, hyperkalemia was more common than hypokalemia, seen in 22% and 7% of the subjects. Calcium level was found to be normal in majority of the patients. Almost as common as normalcy was hyperphosphatemia of phosphorus levels >4.5mg/dl which was seen in 40% of the study subjects. Majority of the subjects were found to have normal uric acid levels whereas less showed hyperuricemia. Hypouricemia as such is not an entity that was noted.

### Table 1: distribution of patients based of diagnosis of chronic kidney diseases

| Diagnosis                  | No. of patients |
|----------------------------|-----------------|
| Hypertension               | 89              |
| Reflux nephropathy         | 12              |
| Glomerulonephritis         | 25              |
| Polycystic                 | 6               |
| Solitary kidney            | 5               |
| Total                      | 137             |

### Table 2: Distribution of subjects based on signs

| Symptoms                  | Present | Absent |
|---------------------------|---------|--------|
| Abdominal selling         | 24      | 113    |
| Pallor                    | 137     | 0      |
| Hypertension              | 77      | 60     |
| Pedal edema               | 114     | 23     |
| ESM                       | 45      | 92     |
| General swelling          | 134     | 3      |
| Nail changes              | 3       | 134    |
| Pleural effusion          | 15      | 122    |
Discussion

Kidney diseases can be broadly categorised as acute or chronic. Acute kidney disease or acute renal failure is commonly reversible and is triggered by a precipitating injury such as dehydration, trauma, surgery or a nephrotoxic drug. The kidney is usually structurally normal and of normal size as opposed to chronic, where the kidney is generally shrunken. Chronic kidney disease is characterised by persistent abnormalities in the urine as well as in the structure and function of the excretory apparatus or impairment of kidney function due to a loss of functional nephrons. When there is exclusion of diabetes mellitus it leads to variety of different etiological factors the care to be taken to reduce the chronic kidney diseases burden in the society.

In the present study the mean age of the included patients was found to be 53 years. The results was similar to the results shown by the study done by Lusignan et al. he showed the mean age to be 57 years. The minimum age in the study was found to be 20 years and the maximum age in the study group was found to be 85 years. The results shows that with increase in age there is increase in incidence of chronic kidney diseases, around 78% of the patients belong to the age group of more than 43 years. The male to female ratio was found to be 2:1 in the present study. The male preponderance was also true in other parts of the world as is shown in the study by Drey et al.

The youngest age group in the present study was found to be 30 – 39 years. The most common etiological factor was found to be glomerulonephritis. In the age group of more than 50 yeats the most common cause of chronic kidney disease was found to be hypertension. The present study pattern was similar to the findings of other Indian study done by Sharma et al. The most common symptoms were found to be generalise weakness in the study group. Majority of the patients were symptomless and go undiagnosed or a long period of time. The detection of such symptoms is found to be importance in many previous study done by Khalel Kader et al. Hypertension is considered as one of the causative factor and also results as effect of chronic kidney diseases. Due to increase in hypertension incident there is also increase in greater decline in rate of GFR. Increase in the severe effect of chronic kidney diseases progression will increase the risk of hypertension in the individuals.

Majority of patients included in the study had a moderate elevation of creatinine levels. In around 95 patients the Blood Urea Levels was recorded between 50-150mg/dl. In around 73 patients the levels of uric acid was found to be in normal levels followed by increased uric acid levels were seen in 64 patients. The prevalence of severe anemia is therefore, low However moderate anemia is seen in most of the patients. The severity of anemia increases with increasing severity of CKD. With regard to electrolytes, normal levels were seen most often. Considering derangements, the following trends were noticed. Hyponatremia was seen in 30% patients, which makes it uncommon. A study by Csaba et al has shown a significant association of hypernatremia to increased morbidity and mortality with hyponatremia.

Hyperkalemia was seen in around 30% of the patients. Associated with hyperkalemia is the metabolic acidosis causing extracellular potassium shift in renal disease. Intestinal factors help to normalise the potassium levels. The high potassium levels are a risk especially when the GFR falls to a level < 20% of normal. Hyperphosphatemia is observed in 40%. Calcium levels are seen to be low more often than normal in patients of CKD. This derangement in calcium and phosphorus metabolism leads to abnormal bone metabolism and weakness of bones. This combination is also shown to increase the mortality in the patients.

Conclusion

The major causative factor for chronic kidney dises was found to be hypertension that was followed by other factor like glomerulonephritis. Hence the early intervention and detection of such patients will leads to early diagnosis and treatment of such patients and will also increase the survival rate of the patients.

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