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Causes of Chronic Kidney Disease

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ABSTRACT

Chronic kidney disease is characterized by irreversible loss of kidney function. It is classified and staged according to Glomerular filtration rate. Chronic kidney disease presents with wide range of clinical symptoms and signs such anemia, pruritis, weight loss, anorexia, nausea, vomiting, kasmauls breathing, plusus paradoxus, pallor, bruising.

There are various etiological causes of CKD including diabetes mellitus, hypertension, durg induced, autoimmune and polycystic kidney disease. This was an observational study conducted at DHQ hospital Nankana sahib in the dialysis unit. All the patients on dialysis were included in the study. By accessing their clinical notes and through history we determined cause of CKD in each.

Results showed that Diabetes and hypertension were among the most common etiological factors of Chronic kidney disease. By adequate control and early detection of diabetes and hypertension we can gain a reduction in disease burden of CKD.

Key words : CKD, Chronic renal failure, Hakeem medications, diabetic nephropathy

INTRODCTION:

The irreversible decline in the renal function which develops over the years leading to loss of endocrine, excretory, metabolic and hematological functions of the kidney is termed as chronic kidney disease or chronic renal failure[1][3]

. When there is life threatening without renal replacement therapy then it is call end-stage renal disease. There are various causes of ESRD most commonly due to Diabetes, hypertension, Drug induced , renovascular , congenital kidney diseases and various autoimmune diseases.

Chronic kidney disease is divided into various stages according to Glomerular filtration rate. The said division is given as under[2]:

- Stage 1: kidney damage without any decline in GFR (GFR.>90 ml/min)
- Stage 2: CKD with GFR between 60 and 90 ml/min
- Stage 3 :CKD with GFR between 30 and 59 ml/min
- Stage 4: CKD with GFR between 15 and 29 ml/min
- Stage 5 GFR less than 15 and/or a patient on dialysis

The patient of chronic kidney disease presents with nocturia, tiredness, breathlessness, anemia, pruritis, anorexia, weight loss, fits, coma, drowsiness and vomiting. The patients have metabolic acidosis and as a result they develop Kussmaul's respiration.

The patients of CKD are immunocompromised and thus they are prone to infections particularly access devices associated or common infections such as pneumonia. Hematologically, patients of CKD have anemia as well as increased bleeding tendency. Anemia in CKD is due to; absence of erythropoietin which is normally produced by kidneys, toxic effects of urea on marrow cells, reduced absorption of iron and increased blood loss due to capillary fragility and poor platelet function.Endocrine functions of kidney deteriorate too[5][7]. There is hyperprolactinemia due to hypogonadism and this leads to loss of libido. Neurologically, restless leg syndrome, myopathy, parasthesias and foot drop occur due to CKD.[4]

Diabetes is one of the most common etiologial factor in Chronic kidney disease. Long standing diabetes causes increased production of matrix and leads to expansions of mesangium. It also leads to thickening of Glomerular basement membrane. There is dilatation of afferent renal arteriole leading to intraglomerular hypertension and glomerular sclerosis. All these three factors lead to chronic kidney disease.[6]

Hypertension directly causes golmerular sclerosis. Various drugs such as steroids and metals directly causes tubular damage. Our study was conducted to find out prevelance of various causes of CKD in patients of end stage renal disease on dialysis.

MATERIALS AND METHODS:

This was an observational type of study conducted at Dialysis unit of District Headuarter Hospital

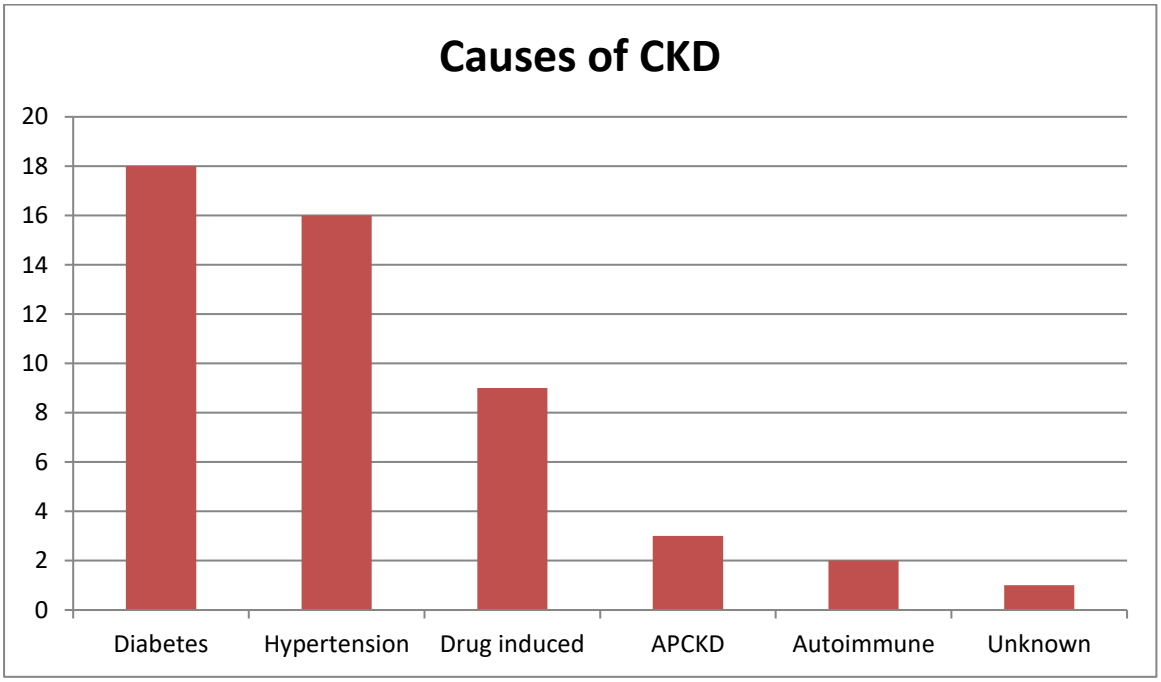
Nankana Sahib, Punjab, Pakistan from January 2017 to June 2018. All the patients on dialysis due to chronic kidney disease regardless of their stage or creatinine levels were included in our study.

A preformed questionnaire was given to each patient and it was filled by on duty medical officer. The questionnaire contained options if any patients was suffering from Diabetes, hypertension, any congenital kidney disease or he took any drugs before onset of CKD. Alongwith the history, clinical notes of primary treating physician were also assessed after consent from the patient and etiologival factor was determined clinically, history wise and on lab investigation.

RESULTS:

A total of 49 patients of CKD were included in our study 6 patients did not give consent for assessing their clinical record.

Diagnosis	No. of Patients	Percentage
Diabetes	18	36.73%
Hypertension	16	32.65%
Drug Induced(Hakeem medication)	9	18.36%
APCKD	3	6.1%
Autoimmune disorder	2	4.08%
Unknown	1	2.04%
Total	49	100%



It was observed that diabetes and hypertension were among the two most common causes of Chronic kidney disease, followed by drug induced kidney injury. Drug induced kidney injury is most commonly due to taking intake medications which are drugs of unknown chemical composition without any approval from drug regulatory authorities.

03 patients had adult polycystic kidney disease in which there id formation of cysts in the kidney which decline renal function. Such patient presents at a very young age and this disease is due to a inherited gene mutation.

Despite thorough clinical history and assessing clinical data 01 patient was having CKD due to unknown cause.

DISCUSSION:

Diabetes and hypertension are one of the many leading causes of chronic kidney disease. In our study diabetes and hypertension were among the top most causes followed by drug induced CKD and autoimmune and congenital causes. Our finding were in consistent with another study conducted by Laurentia Mihardja in indonesia published in journal of diabetes and metabolic disorders.

Alternative medicine is a very popular in lower socioeconomic groups of developing countries however their use in developed world has increased in recent times. Such drugs do not have any safety testing done nor do they any chemical compositions defined leading to progressive

interstitial nephritis and some patients develop malignancies too.

Adult polycystic kidney disease is autosomal dominant. Its transfer to the next generation can be prevented by adequate genetic testing prior to marriage.

CONCLUSIONS:

- Early detection of patients of Diabetes and hypertension and its adequate control can help us reduce the disease burden of chronic kidney disease.
- There should be thorough campaign regarding discouraging use of unregistered and unknown hakeem medications as they may cause Chronic kidney disease.

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