



A STUDY ON CLINICAL PROFILE PRESCRIBING PATTERNS OF MEDICINES AND COMPLICATIONS IN PATIENTS WITH CHRONIC KIDNEY DISEASE IN GOVERNMENT GENERAL HOSPITAL, KURNOOL

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Abstract:

INTRODUCTION

Chronic kidney disease represents the entire spectrum of disease that occurs following the initiation of kidney damage. The introduction of a formal definition for CKD has enabled standardize current medical communication facilitate appropriate population. Encourage timely prevention and treatment of kidney disease through screening. The GFR is considered the most reliable indicator of overall kidney function. GFR level below 60 mL / minute / 1.73 m² represents loss of one half or more of the adult level of normal kidney function. Normal GFR varies according to patient age, sex, and body size. The MDRD formula is a better estimate of GFR than those derived from 24-hr urine clearance or the Cockcroft- Gault formula. The abbreviated MDRD formula requires gender, race, and serum creatinine.

METHODOLOGY

It is a Prospective Observational Study conducted in the Department of Nephrology of Government General Hospital Kurnool over a period of 6 months.

RESULTS

In our present study out of 120 patients with CKD, among them 61.6% were males and 38.3% were females. Majority of patients were in the age group of 41-60 years with mean age of 43.81±14.87 years followed by 21-40years (17%), greater than 60 years (16%), and greater than or equal to 20 years (4%). In our study HTN is the most commonest cause of CKD(75%), Diabetes mellitus(30.8%), IHD(8.3%) and Bronchial Asthma(5%) were the other causes of CKD. In our present study 85.8% of the patients were prescribed with Anti hypertensives followed by Diuretics with 82.5%, Anaemic drugs with 35%, Hypoglycemic drugs with 20.8% and proton pump inhibitors with 11.6%. The common complication in our study population is anemia with 59% followed by pulmonary edema (35%), hypertension (32%), urinary tract infection (13%), coronary artery disease (8%), uremic encephalopathy (3%), hypothyroidism and peripheral neuropathy are at bottom with 1%.

CONCLUSION

Hypertension is the commonest cause of the chronic kidney disease in the study population. Edema and dyspnea are most common symptoms in our study population. More than three fourth of patients presented with stage 5 chronic kidney disease for the first time. Hypertensives and diuretics are most prescribed drugs. No patients received renal replacement treatment. Complications like anemia and pulmonary edema increased with progression of stage of CKD.

KEYWORDS: Chronic Kidney Disease, Ischemic Heart Disease, Hypertension, Modification of diet in Renal Disease, Glomerular Filtration Rate.

1. INTRODUCTION

- Chronic Kidney Disease represents the entire spectrum of disease that occurs following the initiation of kidney damage. The introduction of a formal definition for CKD has enabled standardize current medical communication facilitate appropriate population by encourage timely prevention and treatment of kidney disease through screening.
- Kidney damage for greater than are equal to 3 months as defined by structural or functional abnormalities of kidney with or without decreased GFR manifest by either pathological abnormalities or markers of kidney, including abnormalities in the composition of blood and urine, or abnormalities in imaging tests.
- GFR less than 60 ml/min/1.73m² for greater than equal to 3 months with or without kidney damage. The GFR is considered the best measure of overall kidney function. A GFR level below 60ml/min/1.73m² represents the loss of one half or more of the adult level of normal kidney function.
- Normal GFR varies according to patients age, sex and body size. The MDRD formula is a better estimate of GFR than those derived from 24 hours urine clearance or the Cockcroft-Gault formula.
- Diagnosis of chronic kidney disease traditionally is based on pathology and etiology, broadly divided into diabetic, glomerular, vascular, tubular interstitial and cystic kidney disease.
- In developing countries, evidence is lacking regarding the etiology of CKD because of poor data collection, infectious diseases and infection related chronic glomerulo-nephritis form a major cause of CKD and End Stage Renal Disease (ESRD).
- In spite of this, it's believed that diabetes and hypertension are the leading cause of CKD in India.
- Signs and Symptoms include Edema, Polyuria, Fluid overload, Anorexia, Nausea and vomiting, Muscle cramps etc.,
- Hypertension is both a cause and complication of CKD and should be carefully controlled in all patients.
- Treatment of co-morbid conditions, interventions to slow progression of kidney disease, and measures to reduce the risk for CVD should begin during stage-1 and stage-2.
- Evaluation and treatment of other complications to slow progression of decreased GFR such as Anemia Malnutrition Bone disease, Neuropathy and decreased quality of life, should be under taken during stage-3, as the prevalence of these complications begins to rise when GFR declines to less than 60 ml/min/1,73m².

II. AIM AND OBJECTIVES

AIM OF THE STUDY

To determine the clinical presentation, prescribing pattern of medicine and complications in patients who are suffering with chronic kidney disease.

OBJECTIVES OF THE STUDY

- To study the clinical profile of patients with chronic kidney disease
- To determine the prescribing patterns of medicines in chronic kidney disease.
- To assess the complications in patients with chronic kidney disease.

III. METHODOLOGY

STUDY DESIGN: Prospective Observational Study

STUDY SITE: Nephrology department Government general hospital Kurnool

STUDY DURATION: it is conducted over a period of 6 months

SAMPLE SIZE: 120 patients were included in our study

INCLUSION CRITERIA

- All patients diagnosed and treating with chronic kidney disease are included in the study
- Patients of above age 18 years are included.
- Patients of either sex are included.
- Patients with complications of chronic kidney disease are also included.

EXCLUSION CRITERIA

- Paediatrics of age below 18 is excluded.
- Pregnant women are excluded from the study.
- Out patients are excluded from the study.

SOURCE OF DATA

All the patients who satisfy the inclusion criteria were selected from the Nephrology Department in Government General Hospital, Kurnool.

All the required data was collected from patients through personal interview and case sheets.

METHOD OF DATA COLLECTION

All the patients who satisfy the inclusion criteria were selected from the Department of Nephrology Government General Hospital Kurnool.

All the data of the subjects are collected by using the proforma.

The data collection includes demographic details, History of present illness, Treatment history, past medication history, Family history, Personal history and allergies, Laboratory investigations, Diagnosis, Drug chart.

IV. RESULTS

4.1 AGE AND SEX DISTRIBUTION OF STUDY POPULATION

Among the 120 patients included in the study, 74 were males and 46 were females. Majority of the patients in the study were between 41-60 years of age.

Tab 4.1: age and sex distribution of study population

AGE GROUP	TOTAL	MALE	FEMALE	PERCENTAGE
≥ 20 years	4	1	3	4%
21-40 years	20	6	14	17%
41-60 years	77	57	20	64%
> 60 years	19	10	9	16%

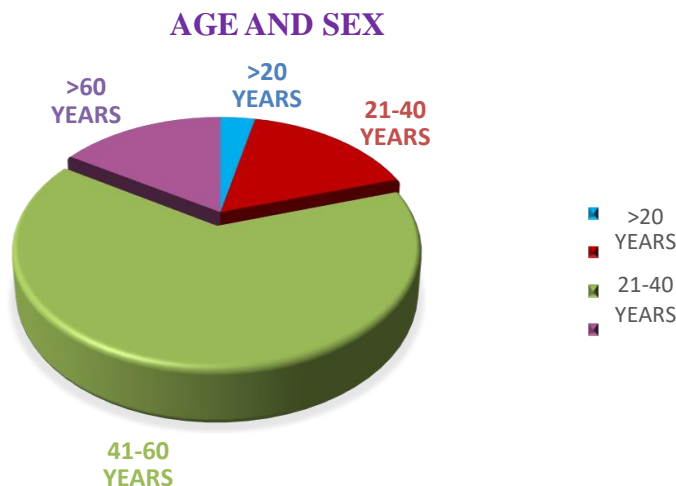


Fig 4.1: age and sex distribution of study population

4.2 EDUCATIONAL STATUS

In our study 74 patient were illiterate, 26 had primary education, 14 had secondary education, while the rest, 6 were graduates

Tab 4.2: distribution of education status in study population

GENDE R	LITERA TE	ILLETERA TE	TOTA L
MALE	22	24	46
FEMA LE	42	32	74

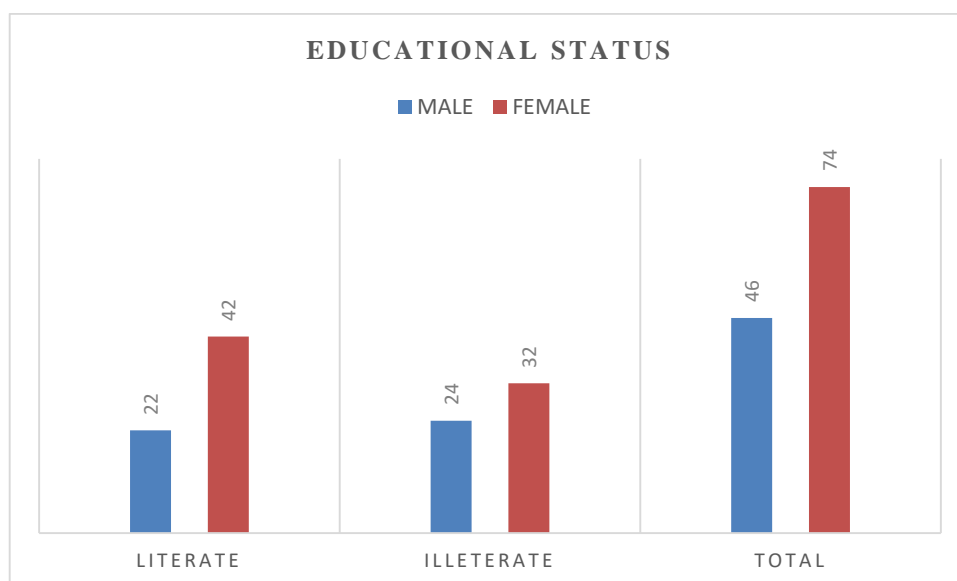


Fig 4.2 distribution of education status in study population

4.3 GENDER WISE DISTRIBUTION OF CAUSES OF CKD

Among the 120 patients 90 were diagnosed with HTN, 37 were diagnosed with DM, 10 were diagnosed with IHD, 6 were diagnosed with Bronchial Asthma and 6 were diagnosed with TB.

Tab 4.3: gender wise distribution of causes of CKD

CAUSES	MAL E	FEMA LE	TOT AL
HYPERTENSION	53	37	90
DIABETES MELLITUS	23	14	37
ISCHEMIC HEART DISEASE	9	1	10
BRONCHIAL ASTHMA	3	3	6
TUBERCULOSIS	5	1	6

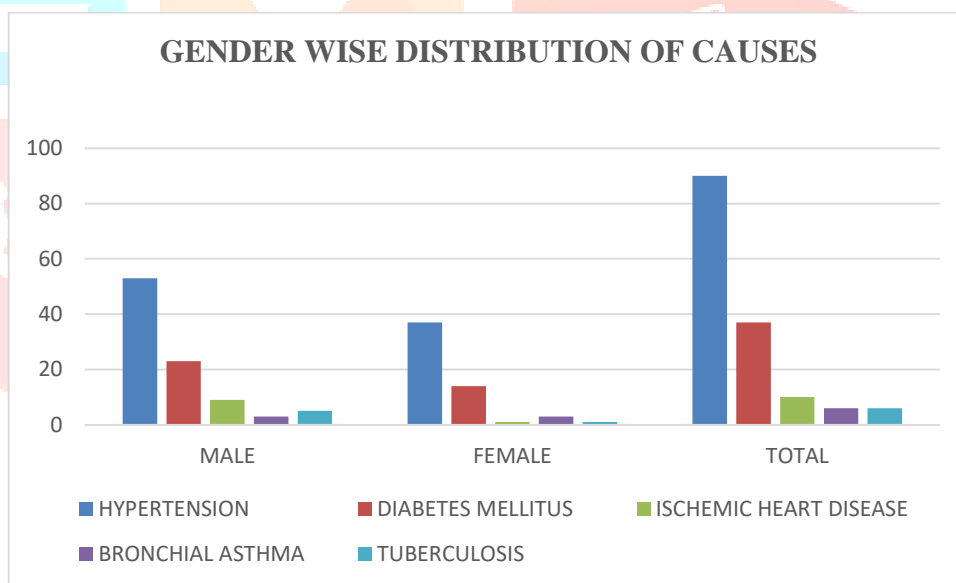


Fig 4.3 gender wise distribution of causes of CKD

4.4. AGE WISE DISTRIBUTION OF CAUSES OF CKD

Maximum number of Hypertension patients were 41-60 years patients while diabetes mellitus was also common in 41-60 years patients.

Tab 4.4: age wise distribution of causes of CKD

CAUSES	≥20 Years	21-40 Years	41-60Years	>60Years
HYPERTENSION	1	10	44	13
DIABETES MELLITUS	0	0	17	6
ISCHEMIC HEARTDISEASE	0	1	6	3
BRONCHIAL ASTHMA	0	3	1	0
TUBERCULOSIS	0	0	3	1

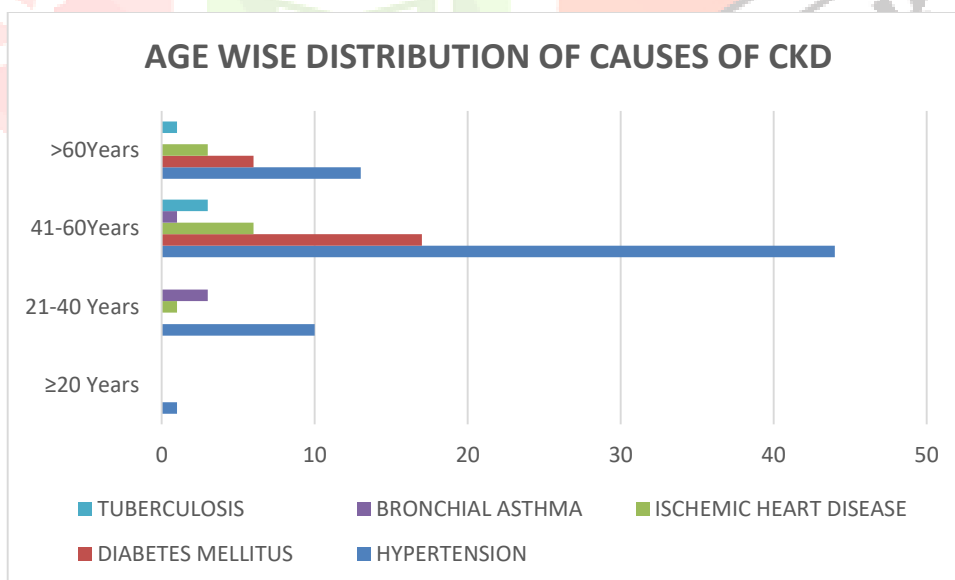


Fig 4.4 age wise distribution of causes of CKD

4.5 AGE AND GENDER WISE DISTRIBUTION OF CAUSES OF CKD

Tab 4.5 age and gender wise distribution of causes of CKD

CAUSES	GENDER	≥20 years	21-40 years	41-60 years
HYPERTENSION	MALE	1	4	41
	FEMALE	1	10	17
DIABETES MELLITUS	MALE	0	1	17
	FEMALE	0	1	9
ISCHEMIC HEARTDISEASE	MALE	0	1	5
	FEMALE	0	0	1
BRONCHIAL ASTHMA	MALE	0	0	4
	FEMALE	0	0	1
TUBERCULOSIS	MALE	0	0	3
	FEMALE	0	3	0

4.6 DISTRIBUTION OF SUBJECTS BASED ON SOCIAL HABITS

Tab 4.6 distribution of subjects based on social habits

HABITS	MALE	FEMALE	TOTAL	PERCENTAGE
Smoking	32	0	32	26%
Chewing	5	4	9	7.8%
Alcohol	40	2	42	35%
NSAIDS	13	5	18	15%
Herbo minerals	-	1	1	1%
Betal leaf	-	2	2	2%

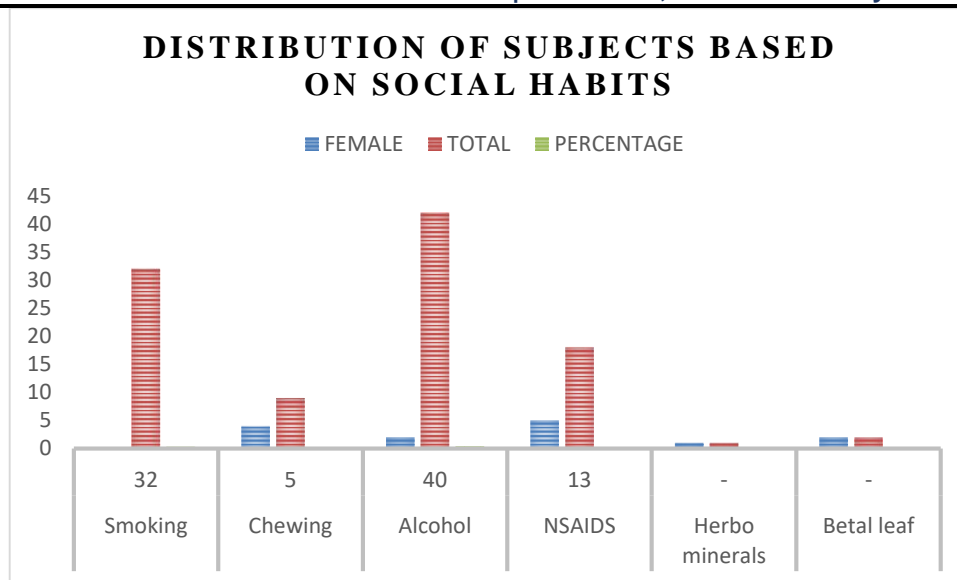


Fig 4.6 distribution of subjects based on social habits

4.7. CLINICAL PROFILE OF THE STUDY POPULATION

Out of the 120 patients, 101 had symptoms suggestive of volume overload state like pedal edema, puffiness of face, dyspnea was present in 90 patients, 58 patients had sleep disturbances and 49 had oliguria. Gastrointestinal symptoms like Nausea, vomiting and decreased appetite were present in 111 patients, muscle like headache in 48 patients, muscle cramps in 47 while only 2 patients in the study had bleeding manifestation as the presenting complaint.

Tab 4.7 clinical profile of the study population

SYMPTOMS	MALE	FEMALE	TOTAL
Edema or Anasarca	64	37	101
Oliguria	33	16	49
Nocturia	16	8	24
Dyspnea	55	35	90
Chest pain	19	9	28
Sleep Disturbance	37	21	58
Headache	25	23	48
Polyuria	10	3	13
Itching	8	4	12
Muscle cramps	32	15	47
Joint pains	16	12	28
Bleeding at any site	2	-	2
Anorexia	32	17	49

Nausea	13	13	26
Vomiting	22	14	36
Hiccups	7	1	8
Skin rashes	7	5	12
Hematuria	2	5	7

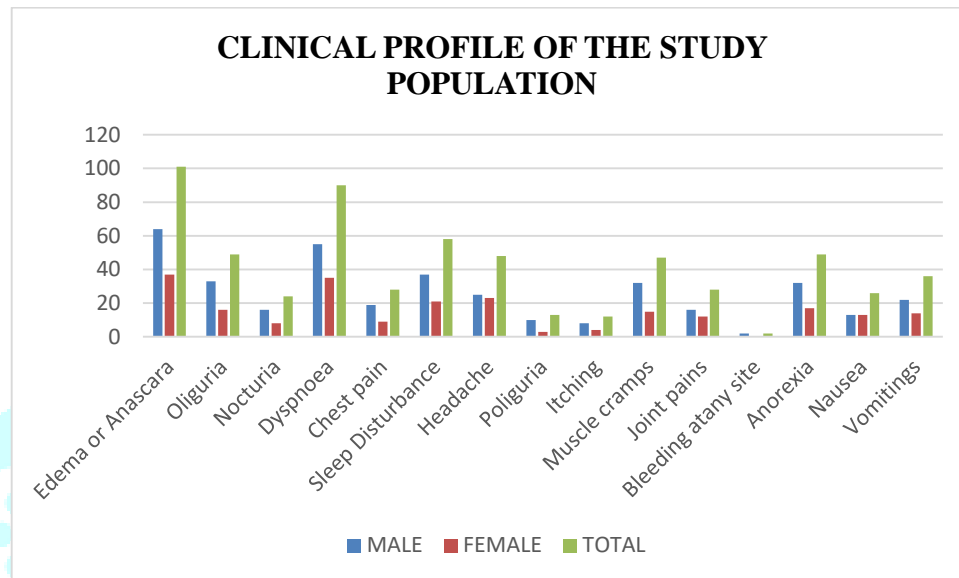


Fig 4.7 clinical profile of the study population

4.8 OTHER PRESENTING SYMPTOMS OF POPULATION ON CKD

Tab 4.8 other presenting symptoms of population on CKD

SYMPTOMS	MALE	FEMALE	TOTAL
Burning micturition	1	0	1
Decrease Vision	0	1	1
Yellow Discoloration	0	1	1
Cough	8	4	12
Sore Throat	0	1	1
Abdominal Distention	9	3	12
Constipation	0	2	2
Fever	1	2	3
Abdominal Pain	0	1	1
Myopia	1	0	1
Wheeze	1	0	1
Altered Sensorium	1	0	1
Dry Mouth	1	0	1
Slurred Speech	3	0	3
Deviation of mouth	1	0	1

Knee Stiffness	1	0	1
Dizziness	1	0	1
Weakness	1	0	1
Loose Stools	1	0	1
Muscle Stiffness	1	0	1

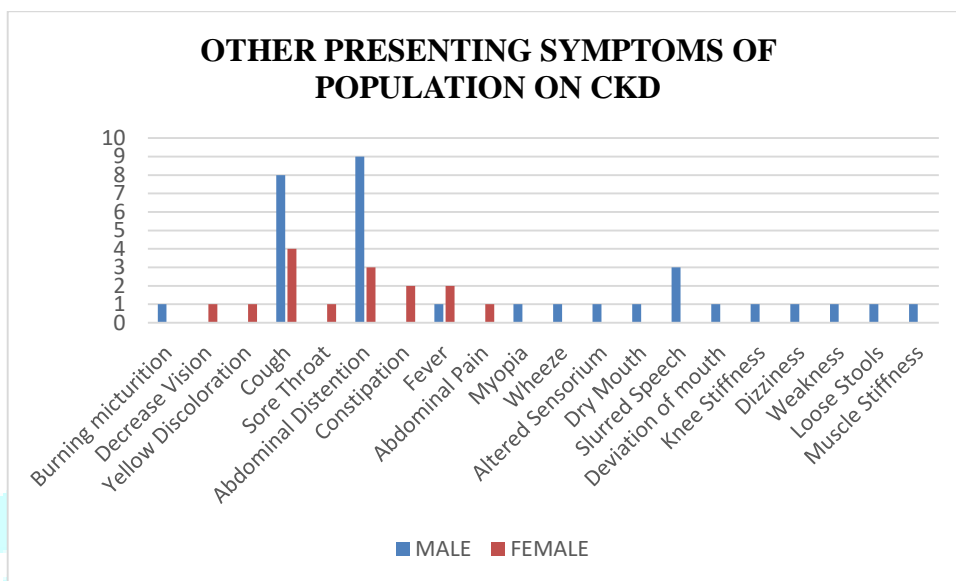


Fig 4.8 other presenting symptoms of population on CKD

4.9 CURRENT MANAGEMENT IN THE STUDY POPULATION

Tab 4.9: current management in the study population

GENDER	ON MEDICATION	ON DIALYSIS	ON TRANSPLANTATION
MALE	74	66	0
FEMALE	46	37	0
TOTAL	120	103	0

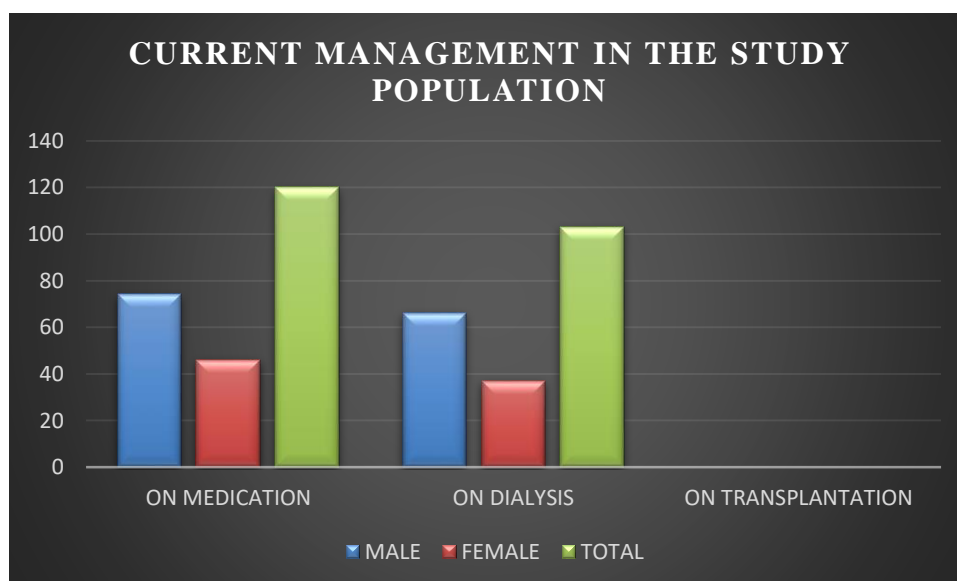


Fig 4.9: current management in the study population

4.10: DISTRIBUTION OF SUBJECTS BASED ON STAGES OF CHRONIC KIDNEY DISEASE

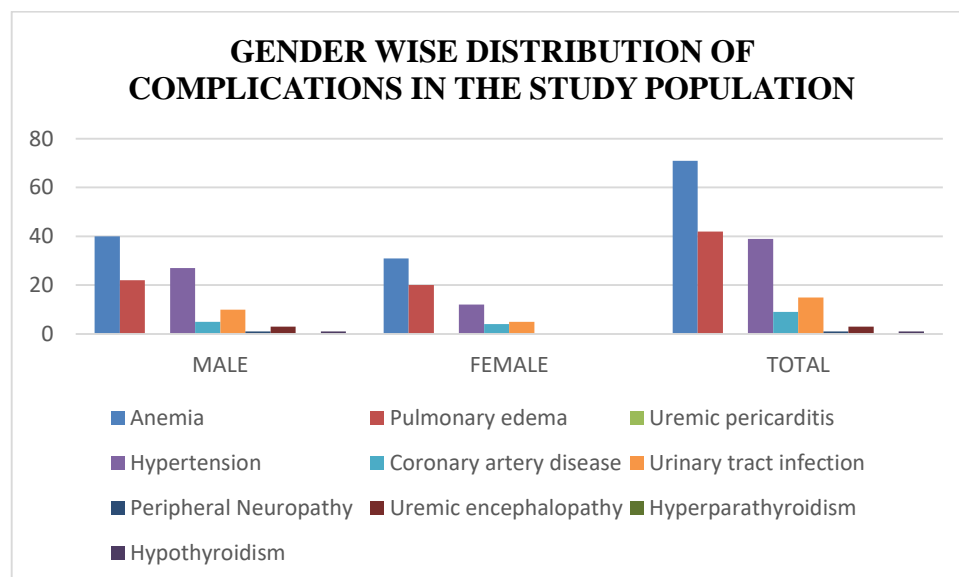
Majority of the patients in the study – 60 were male and 41 were female presented with stage -5 CKD. The mean GFR in the study population calculated by CKD-EPI Creatinine formula.

Tab 4.10: distribution of subjects based on stages of chronic kidney disease

STAGE	DESCRIPTION	eGFR	MALE	FEMALE	TOTAL	PERCENTAGE
Grade-1	Kidney damage with Normal or increased GFR	≥ 90	0	0	0	0%
Grade-2	Kidney damage with Mild decreased GFR	60-89	0	0	0	0%
Grade-3	Moderate ↓ GFR	30-59	1	0	1	1%
Grade-4	Severe ↓ GFR	15-29	13	5	18	15%
Grade-5	Kidney Failure	<15	60	41	101	84%

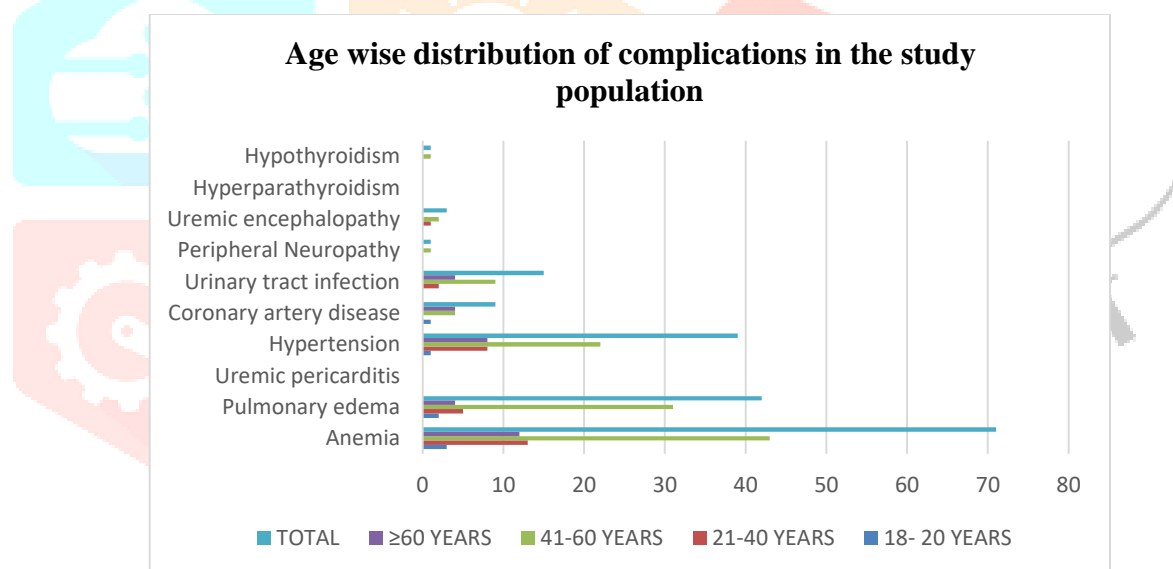
4.11 GENDER WISE DISTRIBUTION OF COMPLICATIONS IN THE STUDY POPULATION**Tab 4.11: gender wise distribution of complications in the study population**

COMPLICATIONS	MALE	FEMALE	TOTAL	PERCENTAGE
Anemia	40	31	71	59%
Pulmonary edema	22	20	42	35%
Uremic pericarditis	0	0	0	0%
Hypertension	27	12	39	32%
Coronary artery disease	5	4	9	8%
Urinary tract infection	10	5	15	13%
Peripheral Neuropathy	1	0	1	1%
Uremic encephalopathy	3	0	3	3%
Hyperparathyroidism	0	0	0	0%
Hypothyroidism	1	0	1	1%

**Fig 4.11: gender wise distribution of complications in the study population**

4.12 AGE WISE DISTRIBUTION OF COMPLICATIONS IN THE STUDY POPULATION**Tab 4.12: Age wise distribution of complications in the study population**

COMPLICATIONS	18-20	21-40	41-60	≥60	TOTAL
	YEARS	YEARS	YEARS	YEARS	
Anemia	3	13	43	12	71
Pulmonary edema	2	5	31	4	42
Uremic pericarditis	0	0	0	0	0
Hypertension	1	8	22	8	39
Coronary artery disease	1	0	4	4	9
Urinary tract infection	0	2	9	4	15
Peripheral Neuropathy	0	0	1	0	1
Uremic encephalopathy	0	1	2	0	3
Hyperparathyroidism	0	0	0	0	0
Hypothyroidism	0	0	1	0	1

**Fig 4.12: Age wise distribution of complications in the study population****4.13 FIRST LINE TREATMENT FOR PATIENT WITH CKD****Tab 4.13: treatment for patient with CKD**

DRUG NAMES	MALE	FEMALE	TOTAL
Diuretics	59	40	99
Proton Pump Inhibitors	9	5	14
Anemic drugs	22	20	42
Antihypertensive drugs	64	39	103
Antidiabetic drugs	17	8	25

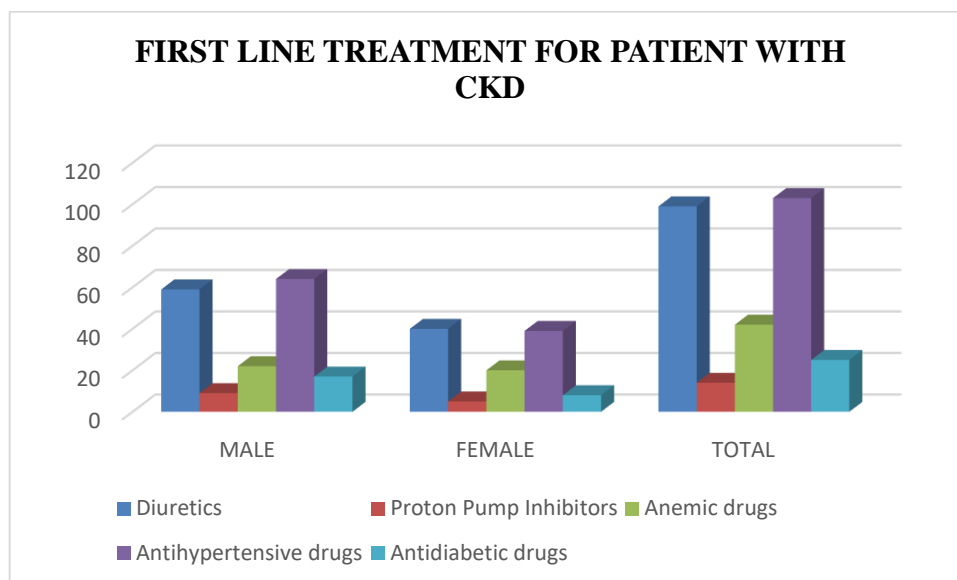


Fig 4.13 treatment for patient with CKD

4.14 OTHER SUPPORTIVE DRUGS

Tab 4.14: Other supportive drugs

DRUG NAMES	MA LE	FEMA LE
Antibiotics	50	29
Analgesics	6	2
Antipyretics	9	6
Antiemetics	3	2
B-complex/cal/vit D3	44	32
Nodosis	45	33
H2 blockers	56	34
Nebulizer with doulin	3	6
Statins	19	7
Hydroxychloroqui ne	3	1
Calcium gluconate	10	4
Noradrenaline	1	0
Anti diarrheal	2	2
IV fluids	5	2
Cetirizine	1	2
Ecosprin	9	8
Corticosteroids	3	3
Nephrosav	6	7
Deriphylline	1	0
O2 inhalation	3	0
Glycerol	2	0
Thiamine	4	0
Uremic	1	0
Cremaffine	3	0
Eptoin	2	0
Midazolam	2	0
Hepatitis B	1	0

Vaccine		
Antiviral	2	0
Antiplatelets	2	0
Immunosuppressant	1	0
Levipil	1	0
Thyronorm	2	1
Benzodiazepines	0	1
Decadron	0	1
Photopan Sunscreen	0	2
Chymoral forte	0	1
Probiotics	5	0
Artesunate	1	0

5. DISCUSSION

The Centre where the study has been conducted is a government setup where a maintenance hemodialysis facility is functioning and a kidney transplant programme is absent. Almost all the patients with chronic kidney disease who are admitted are given hemodialysis.

AGE AND GENDER

In our study out of 120 patients with CKD, 61.6% were males and 38.3% were females. Majority of patients were in the age group of 41-60 years with mean age of 43.81 ± 14.87 years followed by 21-40 years (17%), >60 years (16%) and ≥ 20 years (4%).

EDUCATIONAL STATUS

In our study out of the 120 patients, 61.6% were illiterate or just had primary education and remaining were literates.

CAUSES

Hypertension was the commonest cause of CKD in our study-90(75%) which is consistent with the study done in GGH, Kurnool. Diabetes mellitus (30.8%), ischemic heart disease (8.3%), Bronchial asthma (5%) were the other causes of CKD. The increasing incidence of CKD is seen with non-communicable diseases in developing countries.

Hypertension and CKD

While 90(75%) had hypertension, among 90, 53(44%) were males and 37(30.8%) were females. Majority of the patients were in the age group of 41-60 years (30.8%) and it is followed by >60 years (10.8%).

Diabetes and CKD

After HTN, diabetes is the leading non communicable disease which causes CKD in our study. Among the study population, 37(30.8%) had diabetes in which 32(19.1%) were males and 14(11.6%) were females. This emphasizes the importance of checking macroalbuminuria and proteinuria at the time of diagnosis of type 2 DM.

Habits and CKD

Cigarette smoking was prevalent in 26%, alcohol consumption in 35%, use of nephrotoxic agents like NSAIDS in 15%, chewing of tobacco in 7.8%, use of betel leaf in 2%, Herbo minerals in 1% which might have contributed to the faster progression of the disease in the patients.

SYMPTOMS

Edema was the commonest symptom which was observed in 84% of study population, symptoms of dyspnea in 75%, sleep disturbances in 48.5%, oliguria in 40.8%, headache 40%, gastro intestinal symptoms in 36% followed by muscle cramps, chest pain, joint pains. There needs to be a high index of suspicion of CKD even in patients with symptoms related to other symptoms.

TREATMENT

In our study out of 120, 120 were managed conservatively, 85.8% were received hemodialysis in which men had faster decline in GFR than women. 14.1% of the patients were received medication. No patient underwent for renal replacement therapy.

In our study population, 85.8% of the patients were prescribed with antihypertensives. Antihypertensives were followed by diuretics with 82.5%, anemic drugs with 35%, hypoglycemic drugs with 20.8% and proton pump inhibitors 11.6%. Antibiotics, analgesics, antipyretics, antiemetics, corticosteroids, vitamin supplements were also prescribed to the study population.

CKD STAGE AT PRESENTATION

An overwhelming 101(84%) patients in our study presented with CKD stage 5. Only 18(15%) were in stage 4, 1% in stage 3 and none in stages 1 and 2. This reflects the lack of awareness about CKD in the public and if CKD had diagnosed at an early stage, which would enable appropriate treatment to be instituted to prevent or reduce the rate of progression of CKD and bring down the huge burden due to mismatch between demand and availability of resource for renal replacement therapy in developing countries like India, especially for low socioeconomic group.

COMPLICATIONS

The common complication in our study population is Anemia with 59% followed by pulmonary edema (35%), hypertension (32%), urinary tract infection (13%), coronary artery disease (8%), uremic encephalopathy (3%), hypothyroidism and peripheral neuropathy are at bottom with 1%.

6. CONCLUSION

- ❖ Hypertension is the commonest cause of the chronic kidney disease in the study population.
- ❖ Edema and dyspnea are most common symptoms in our study population.
- ❖ More than three fourth of patients presented with stage 5 chronic kidney disease for the first time.
- ❖ Hypertensives and diuretics are most prescribed drugs.
- ❖ No patients received renal replacement treatment.
- ❖ Complications like anemia and pulmonary edema increased with progression of stage of CKD.

7. REFERENCES

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