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A Study on Medication Practice and Adherence in Chronic Kidney disease Patients at Tertiary Care Hospital

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ABSTRACT:Objectives: Chronic kidney disease (CKD)patients are at increased risk like cardiovascular disease like hypertension, cerebrovascular disease, heart failure and diabetes mellitus. Therapeutic management for chronic kidney disease is complicated due to co-morbidities and dominant risk factors of ckd, in addition adhere to treatment established the progression loss of kidney function stages the disease from 1-5. Methods: A cross sectional observational study conducted for a period of six months in 111 participants. Results: About 63% of patients with hypertension were treated with β blocker (78%) CCB (50%) diuretics (45%) α blockers(62%) and insulin (58.8%)Erythropoei-tin (66.6%) and iron (59.2%).Conclusion: Insulin is most recommended drug to treat diabetes mellitus and NON ACEI drugs were used to treat hypertension , iron and erythropoietin used for treatment of anaemia. The average count of drugs were increased for poorly adhered patient whereas the average count of drug were minimal for highly adhere patients.

KEYWORDS: Morisky 8-itemMedication adherence scale, patient compliance, chronic kidney disease and therapy of CKD.

I INTRODUCTION

The kidneys are two bean shaped organs found

In vertebrates. They are located on the left and right in the retroperitoneal space and in the adult's humans are about 11 centimetres (4.3 in) in length. They receive blood from the paired renal arteries; blood exits in to the paired real veins. Each kidney is attached to a ureter a tubethat carriers excreted urine to the bladder. The nephron is the structural and functional unit of kidney. Each human kidney contains around one million of nephrons, while a mouse kidney contains only about 12,500 nephrons. The kidneys also carry out functions independent of the nephrons. Forexample; they convert a precursor of vitamin D to its active form,calcitriol and synthesize the hormones like erythropoietin and renin.

The kidney participates in the control of the volume of various body fluid compartments, fluid osmolality, acid-base balance, various electrolyte concentrations, and removal of toxins. Filtration occurs in the glomerulus: one-fifth of the blood volume that enters the kidneys is filtered. Examples of substances reabsorbed are solutefree water, sodium, bicarbonate, glucose, and amino acids. Examples of substances secreted are hydrogen, ammonium, potassium and uric acid.

IIOBJECTIVES

- ✓ To know the medication practice in CKD Patients.
- ✓ To access the medication adherence in CKD patients.
- ✓ To know the complications and changes in treatment practice in patients with Co-morbidities.

IIIMETHODOLOGY

Type of study: Cross sectional observational study.
Place of study: South Indian tertiary care hospital
Study period: June 2019 to December 2019
Study population: 111
Sampling technique:random sampling.

IV METHODS

After obtaining the approval from institutional ethical committee, data of patients matching inclusion criteria were recorded after getting informed consent. Data required for conducting the study (demographic details, chief complaints, lab data, and ongoing treatment) were recorded in previously prepared case report form. Based on the objectives of the study the patient's ongoing treatment and adherence were recorded in case report form and Morisky 8 item medication adherence scale.

Inclusion criteria

All the patients visiting the hospital with CKD were included

- ✓ CKD patients with co-morbidities

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- ✓ All the patients of either sex & aged above 18 years would be included
- ✓ Conscious and co-operative patients are only included

Exclusion criteria

- ✓ Pregnant women and paediatric patients
- ✓ Patients with abnormal cognitive behaviour.

STATISTICAL ANYLYSIS

Collected data was collated and appropriate statistical analysis was done using MS Excel

V RESULTS AND DISCUSSION

Table 1 show a total of 111 patients were included in our study, out of them 67(60%)
Were males and 44(40%) were females.

Table no.1: Distribution of Patients based on Gender

S.no	Gender	No.of patients	Percentage
1	**Male**	**67**	**60%**
2	Female	44	40%

According to age wise categorization shown in table 2, about 7(6%) patients were in the age of 20-29, and 9 (8%) patients were in the age group of 30-39, 21(18%) patients were in the age group of 40-49, 25 (22%) patients were in the age group of 50-59, 40 (36%) patients were in the age group of 60-69, 9 (8%) patients were in the age group of 70-79.

Table no. 2: Distribution of Patients based on Age.

S.no	Age	No. of patients	Percentage
1	20-29	7	6%
2	30-39	9	8%
3	40-49	21	18%
4	50-59	25	22%
5	**60-69**	**40**	**36%**
6	70-79	9	8%

The below shown table confirms that CKD with hypertension 97(87%) is the highest among the other CKD co-morbidity, the chronic kidney disease with diabetes reached 41(39%), CKD with HTN & DM were placed at 39(35%) and CKD with anaemia found 47(42%).

Table no. 3: Distribution of patient with Co-morbidities.

S.no	Co-Morbidities	Percentage%
1	Diabetes mellitus	41 (36.90%)
2	**Hypertension**	**97 (87.3%)**
3	Diabetes+ Hypertension	39 (35%)
4	Anemia	47(42%)

MEDICATION PRACTICE

The figure 1 shows that stage I have commonly used drugs like Calcium Channel blockers (100%)&angiotensin converting enzymes(80%), stage II commonly used drugs are diuretics (42%)& CCB (50%); stage III commonly prescribed drugs are diuretics(51%), β blocker (50%) and α blocker(48%) ; stage IV βblockers(95%),diuretics(69%),α blocker(60%) & stage V have β blockers(89%) diuretics (60%), α blocker(80%).

Figure no. 1: Stage Wise Therapy of CKD With Hypertension.

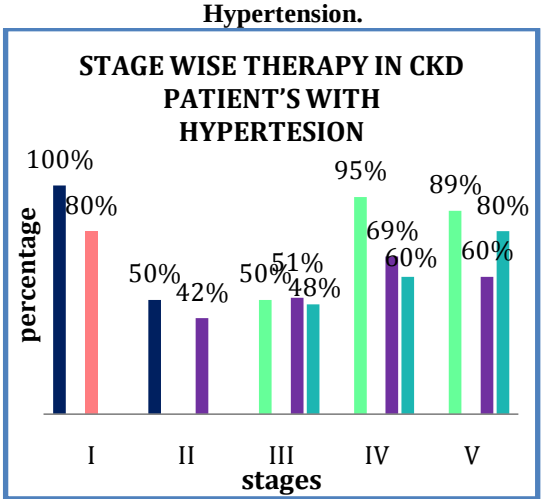

Figure.1: Therapy of CKD with HTN

The figure 2 shows that the sulphonyl urea's Have most commonly used medication in stage I & V whereas insulin prescribed in all stages from I-V.

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Figure no.2: Stage Wise Therapy of CKD with Diabetes Mellitus.

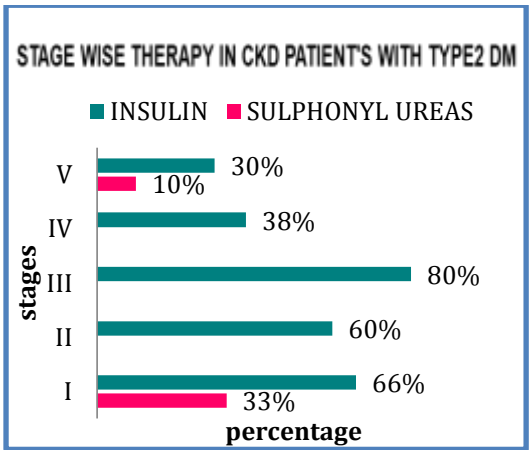

Figure. 2: Therapy of CKD with DM

The below figure 3 shows that the CKD with anaemia have treated with Iron and Erythropoietin in stage I(50%), II(50%),III(72%), IV(72%) & V(52%), Iron were mostly used from stage 1-5 whereas erythropoietin used in stage III(45%),IV (55%) & V (100%).

Figure no.3: Stage Wise Therapy of CKD with Anaemia.

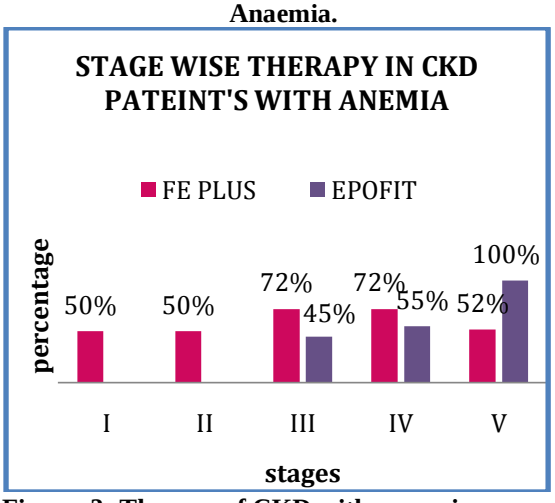

Figure .3: Therapy of CKD with anaemia

MEDICATION ADHERENCE

Table no.4 shows that the total adherence of CKD patients among the same as follows high adherence (19%), medium adherence (81%) and low adherence (7%).

Table no.4: Total Adherence of Patients in CKD.

S.no	adherence	Percentage%
1	HIGH	22(19%)
2	**MEDIUIM**	**81(72%)**
3	LOW	8(7%)

Table no.4 total adherence of patients.

The figure 5 shows that age wise categorization of CKD patients, the age groups as follows 20-29 as high (28%) medium (71%) low (0%), 30-39 as high (33%) medium (55%) low (1%), 40-49 as high (28%)medium (66%) low (4%), 50-59 as high (8%)medium (84%) low (8%), 60-69 as high (12%)medium (77%) low (10%), and 70-79 as high (44%) medium (55%) & low (0%).

S.no	Age	High	Medium	Low
1	20-29	28%	71%	0%
2	30-39	**33%**	55%	1%
3	40-49	28%	66%	**4%**
4	50-59	8%	**84%**	8%
5	60-69	12%	77%	10%
6	70-79	44%	55%	0%

Table no.5 age wise adherence of patients

Figureno.5: Stage wise Adherence of Patients.

The figure no.5 show that stage I CKD patients Appeared high adherence (20%), stage III CKD Patients appeared medium adherence (74%) and stage IV appeared low adherence (7%).

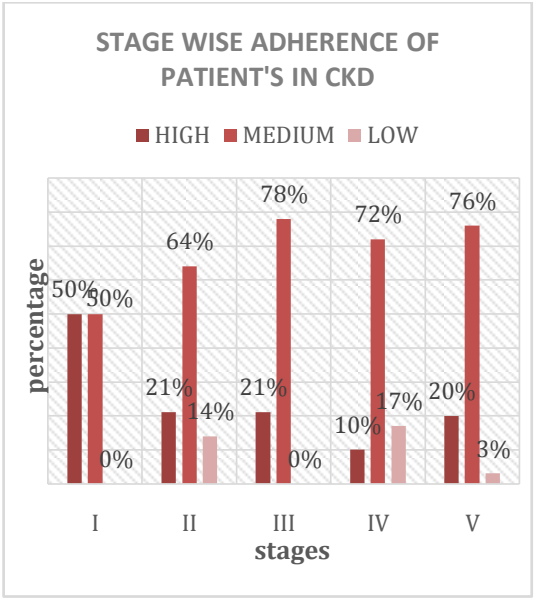

Figure no.5: stage wise adherence

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Figure no.6: Adherence Vs Average Count of Drugs.

The figure 5 says that average number of drugs increases while adherence decreases.

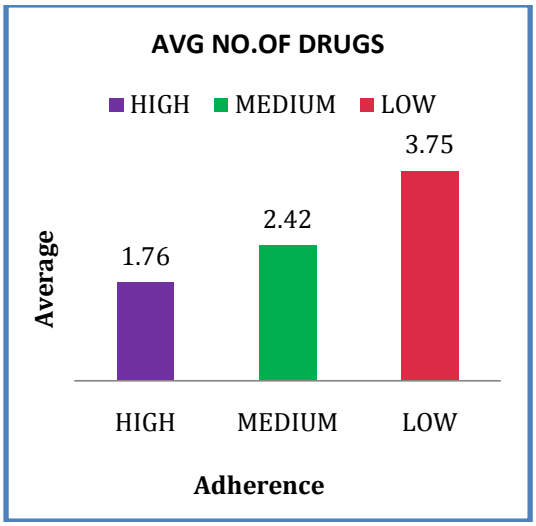

Figure no.6: Adherence Vs Drugs

VI CONCLUSION:

The provision of CKD comprehensive patient care in terms of medication, fluid anddietary restriction is crucial slowing in the progression and complication of CKD. Nonadherence to comprehensive treatment is a cause for concern as it leads to several life threatening complications.

In summary, the present study showed that 63% of hypertensive patients were treated with β blockers, calcium channel blockers, α blockers followed by diuretics, the 13% of hypertensive patients were treated with ARB & ACEIs. Insulin and sulphonyl urea's were most frequently used regimen in the management of CKD with Diabetes Mellitus, Iron and erythropoietin were most frequently used regimen in the management of CKD with anaemia.

According to our study the average number of hypertension drugs were increased as stage increased, as progression of CKD increased use of anti-diabetic drugs were decreased the requirements for insulin to maintain glycaemic control diminish as renal metabolism and excretion of insulin concomitantly and progressively decreases.

There is no significant relation for stages of CKD and ADHERENCE, the males and females were relatively equal to adherence towards therapy. The average count of drugs were increased for poorly adhered patient whereas the average count of drug were minimal for highly adhere patients.

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