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Evaluation of Risk factors for the Prevalence of Kidney Failure(CKD & AKD) and The Impact of Clinical Pharmacists Role in Improving the Medication Adherence in Kidney Disease Patients of A Tertiary Care Teaching Hospital

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ABSTRACT

Aim : The aim of the study is to evaluate the risk factors for the prevalence of kidney failure (CKD & AKD) and to analyse the role of clinical pharmacist in improving the medication adherence.Methodology : A prospective interventional, analytical study was done on patients admitted in Maharaja Institute Of Medical Sciences Viziayanagaram ,AP, India . Information regarding the renal disease ,stages of CKD ,age ,gender ,causative factors ,serum creatinine ,dialysis, medication adherence ,reasons for non medication adherence ,were recorded in standerdquationnarie (Case Report Form).

Results :Total 220 patients were included in this study , out of them 158(71.8%)patients were diagnosed with CKD &62 (28.1%) patients were diagnosed with AKD . Renal disease is high in male patients (63.1%) than in female patients (36.8%). Non medication adherence reasons and pharmacist counselling about medication adherence are the modifiable risk factore and got significant values in student T test (p value 0.0326 & 0.0478) using SPSS Software.

Conclusion: Hypertension Is The Major Riskfactor For Developing of Kidney Failure . More Patients Are Prone To Ckd When Compared To Akd .Kidney Failure Is Mostly Observed In Men Than In Women And They Are Mostly Diagnosed With Ckd Stage 5 .Lack Of Symptoms Is The Primary Factor For Non-Medication Adherence Among People. As There Is A Clear Evidence Seen Based On Data Obtained After Performing Patient Counselling And Patient Education ,We Conclude Clinical Pharmacists Could Play A Vital Role In Improving The Medication Adherence Among Ckd & Akd Patients Which Wil Ultimately Make The Patients Free From Ckd & Akd .

Key words:
Chronic Kidney Failur,Acute Kidney Failure, Case Report Form, Diagnosis.

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INTRODUCTION

ACUTE KIDNEYDISEASE

DEFINITION

Acute kidney injury (AKI), previously called acute renal failure (ARF) is an abrupt loss of kidney function that develops within 7 days.

SIGNS AND SYMPTOMS

Fatigue loss of appetite, headache, nausea and vomiting , abnormal heart rhythms, fluid imbalance, dehydration.

ETIOLOGY

AKI can be caused by systemic disease such as a manifestation of an autoimmune disease, e.g. lupus nephritis, crush injury, contrast agents, some antibiotics, and more. AKI often occurs due to multiple processes. The most common cause is dehydration and sepsis combined with nephrotoxic drugs, especially following surgery or contrast agents.

DIAGNOSIS

Introduced by the KDIGO in 2012 , specific criteria exist for the diagnosis of AKI. AKI can be diagnosed if any one of the following is present: Increase in SCr by ≥0.3 mg/dl (≥26.5 µmol/l) within 48 hours; or Increase in SCr to ≥1.5 times baseline, which has occurred within the prior 7 days; or Urine volume < 0.5 ml/kg/h for 6 hours.

TREATMENT

1.Diuretics,Loop
2.Inotropic Agents
3.Vasodilators
4.Calcium Channel Blockers
5.Antidotes And

DIALYSIS

Dialysis is the process of removing excess water,solutes and toxins from blood in people whose kidneys can no longer perform these functions naturally. This is referred to as renal replacement therapy.

TYPES OF DIALYSIS

1. Heamo dialysis
2. Peritoneal dialysis
3. Heamo filtration
4. Heamodiafiltration
5. Intestinal dialysis

AIM AND OBJECTIVES

AIM

The aim of the study is to evaluate the risk factors for the prevalence of kidney disease and to analyse the role of the clinical pharmacist in improving the medication adherence

OBJECTIVES

- To enlist and report the adverse drug reactions during the therapy.
- To re-emphasize the crucial role of the drug adherence in renal impairment patients.
- To identify the incidence of renal impairment in hypertension and diabetic patients.
- To observe dialysis complications.
- To observe the drug interactions in prescribed drugs.
- To evaluate the reasons for non-medication adherence.
- To counsel and evaluate the patients regarding the importance of complete medication adherence.
- To evaluate the role of clinical pharmacists in improving the medication adherence in renal failure patients.

METHODOLOGY

STUDY SITE

The study was conducted at nephrology department of MIMS hospital .

STUDY DESIGN

The investigation was a interventional study ,approved by hospital ethical committee.

STUDY DURATION

The study was conducted for a period of 6 months from july 2018 to December 2018.

SELECTION CRITERIA

INCLUSION

1. CKD patients of all stages.
2. AKI Patients.
3. Drug induced both CKD &AKI .
4. Patients undergoing dialysis.
5. patients with all age groups of either sex.
6. patients willing to participate in the study.
7. CKD Patients with diabetes mellitus ,hypertension.

EXCLUSION

1. Urinary track obstruction patients.
2. Renal artery stenosis & rapid progressive glomerulonephritis.
3. Patients not willing to participate in the study.
4. Pregnant women with renal impairment.

STUDY PROCEDURE

After obtaining the approval from the ethical committee and from the department of Nephrology, the study was initiated at medicine department by selecting the patient based on inclusion and exclusion criteria of the study. A total number of 220 patients are included in our study .we have collected the patients information with the help of case profile form and questionnaire form. We evaluated about the etiological factor for the development of CKD & AKD, Preference in type of dialysis and complications of dialysis, range of serum creatinine ,medication adherence and reasons for non medication adherence and improving the medication adherence in renal impairment patients. Drug interactions in the prescribed drugs and physician acceptance for the drug interaction cases.

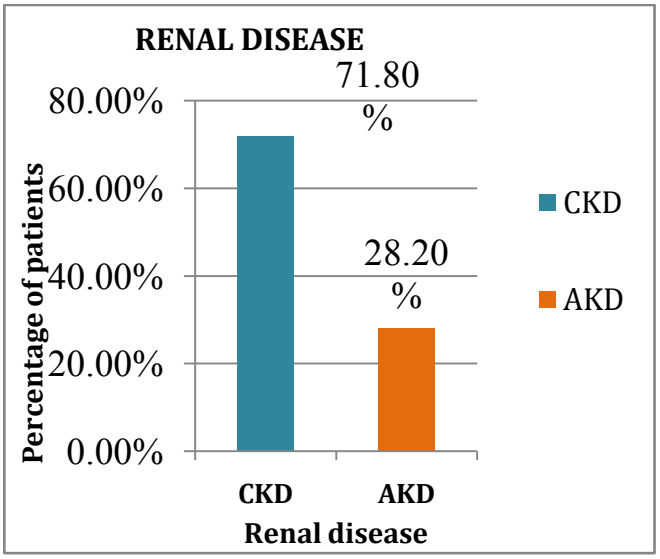
RESULTS

1.RENAL DISEASE

Out of total 220 patients,158(71.8%) patients were diagnosed with CKD and 62 (28.1%) patients were diagnosed with AKD.

Tab 1: Number of patients with CKD and AKD.

RENAL DISEASE	NO. OF PATIENTS	PERCENTAGE (%)
CKD	158	71.8%
AKD	62	28.2%



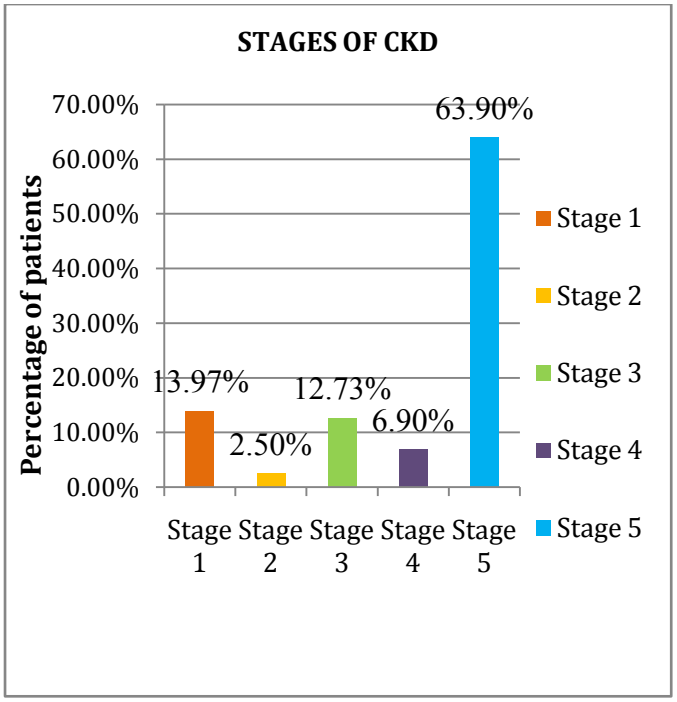
Graph 1: CKD and AKD Patients Percentage.

2. STAGES OF CKD

To interpret the state of disease condition, stage of CKD is necessary. The number of patients who are with CKD stage 1 are 22 (13.4%) , stage 2 are 4 (2.5%) , stage 3 are 20 (12.6%) , stage 4 are 11 (6.9%) and stage 5 are 101(63.9%).

Tab 2:Number of patients in categorized CKD stages and the percentage under each category.

STAGES OF CKD	NO. OF PATIENTS	PERCENTAGE (%)
Stage 1	22	13.97%
Stage 2	04	2.50%
Stage 3	20	12.73%
Stage 4	11	6.90%
Stage 5	101	63.90%



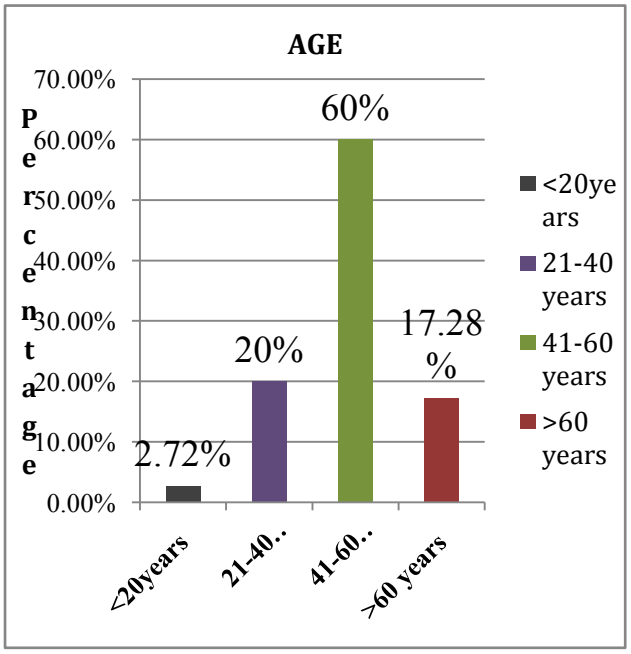
Graph 2 : Differences in percentage of observed CKD stages

3.AGE

The age groups included in our study were from<20-> 60 years Patients in between age group of < 20 years were found to be 2.72%. Patients in between age group of 21-40 years were found to be 20%, Patients in between age group of 41-60 years were found to be 60%, Patients in between age group of >60 years were found to be 17.29%

Tab 3: Age group representing number of patients and its percentage.

AGE	NO.OF PATIENTS	PERCENTAGE(%)
< 20 years	06	2.72%
21-40 years	44	20%
41- 60 years	132	60%
>60 years	38	17.28%



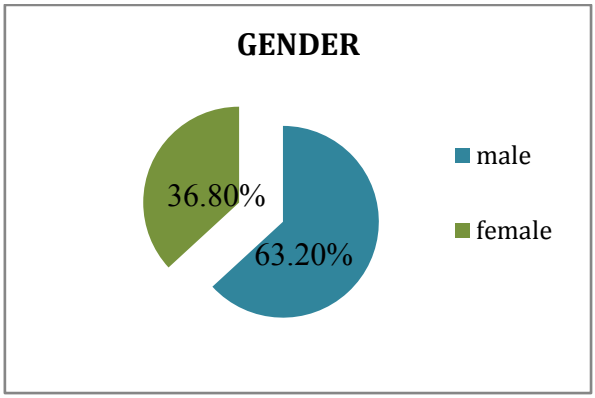
Graph 3: Age group vs number of patients and its percentage.

4. GENDER :

Out of total 220 patients,139 (63.1%) patients were male and 81 (36.8%) patients were female. More prevelance in male patients.

Tab 4: Gender representing the number of patients and its percentage.

GENDER	NO.OF PATIENTS	PERCENTAGE(%)
Male	139	63.20%
Female	81	36.80%



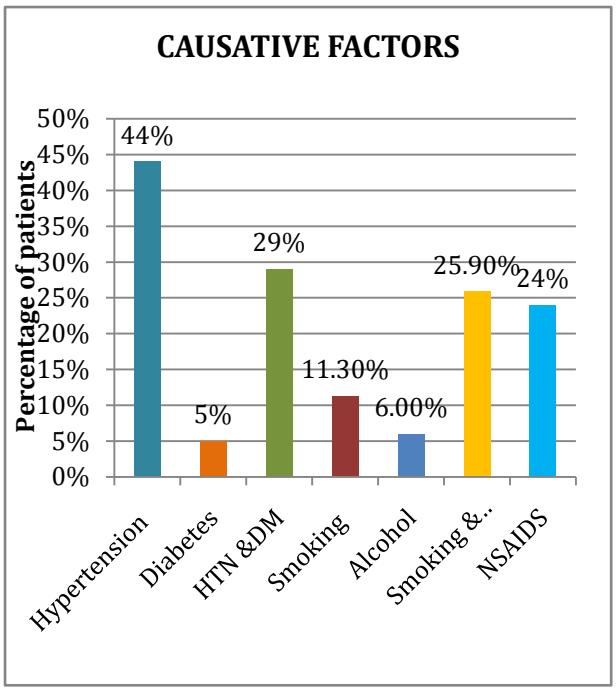
Graph 4: Gender of male vs female patients

5. CAUSATIVE FACTORS

Among all patients only smokers were found to be 11.3%. Among all patients only alcoholics were found to be 6%. Among all patients both smokers and alcoholics were found to be 25.9%. Among all patients hypertension were found to be 44%. Among all patients diabetic were found to be 5%. Among all patients both hypertension and diabetic were found to be 29%. Among all patients drug induced were found to be 24%.

Tab 5: Causative factors with patients and its percentage.

CAUSATIVE FACTORS	NO.OF PATIENTS	PERCENTAGE(%)
Hypertension	97	44%
Diabetes	11	05%
HTN &DM	64	29%
Smoking	25	11.3%
Alcohol	13	6.0%
Smoking & alcohol	57	25.9%
NSAIDS	53	24%



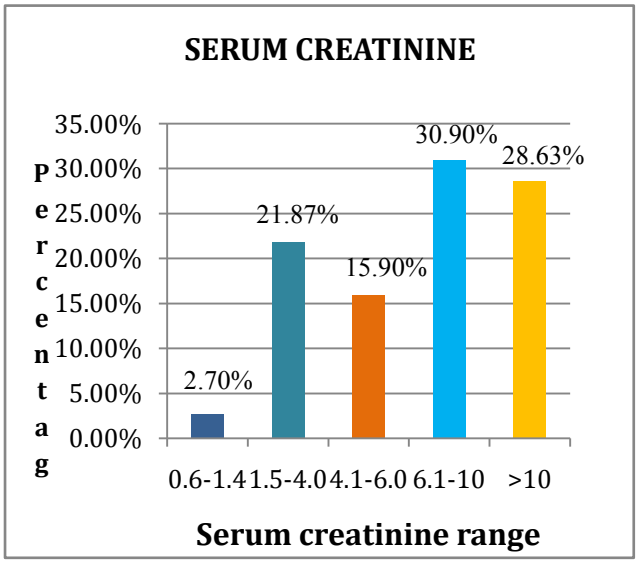
Graph 5: Casative factors and its percentage.

6. SERUM CREATININE

Serum creatinine value of patients ranging from 0.6-1.4 were found to be 2.7%.Serum creatinine value of patients ranging from 1.5-4 were found to be 21.81%. Serum creatine value of patients ranging from 4.1-6 were found to be 15.90%. Serum creatinine value of patients ranging from 6.1-10 were found to be 30.9Serum creatinine value of patients ranging from >10 were found to be 28.63%.

Tab 6: Serum creatinine level in number of patients and its percentage.

SERUM CREATININE	NO.OF PATIENTS	PERCENTAGE(%)
0.6-1.4	6	2.7%
1.5-4.0	48	21.87%
4.1-6.0	35	15.90%
6.1-10	68	30.90%
>10	63	28.63%



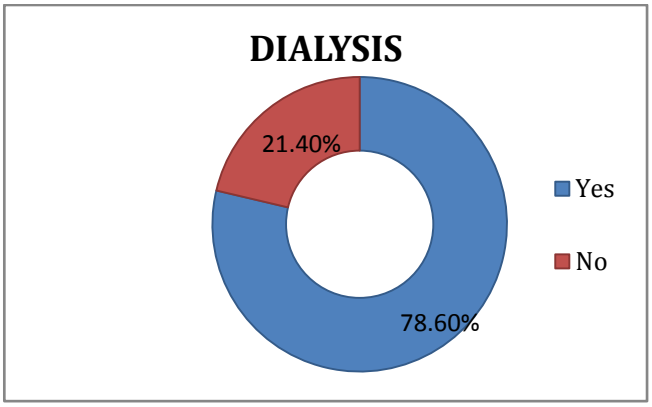
Graph 6: Serum creatinine levels and its percentage.

7. DIALYSIS

The number of patients undergoing dialysis were 154 (70%) patients and 66 (30%) patients were not undergone any kind of dialysis.

Tab 7:Number of patients who underwent dialysis and non dialysed and itspercentage.

DIALYSIS	NO.OF PATIENTS	PERCENTAGE(%)
Yes	154	78.60%
No	66	21.40%



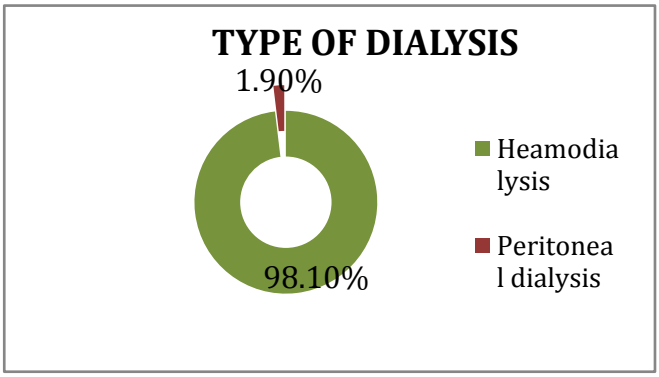
Graph7:Percentge of dialysed vs non-dialysed patients in the study.

8. TYPE OF DIALYSIS

The hemodialysis patients are 151 (98%) and peritoneal dialysis patients are 3 (1.9%).

Tab 8:Number of CKD patients who underwent hemo and peritoneal dialysis and its percentage.

TYPE OF DIALYSIS	NO.OF PATIENTS	PERCENTAGE(%)
Heamodialysis	151	98.10%
Peritoneal dialysis	03	1.9%



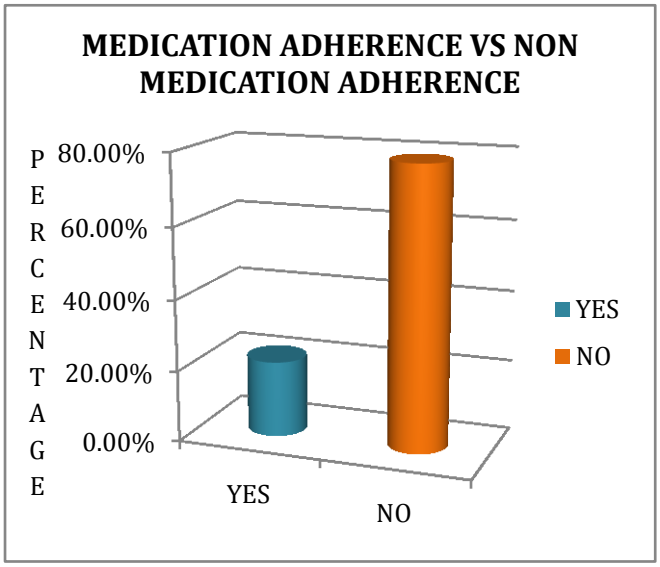
Graph 8: The percentage of heamo dialysis vs peritoneal dialysis patients.

9. MEDICATION ADHERENCE VS NON MEDICATION ADHERENCE

Among 220 patients, 47 (21.3%) patients were found to be adhered to medication and 173(78.6%) were not adhered to medication.

Tab 9: Patients with medication adherence and non-medication adherence.

MEDICATION ADHERENCE	NO OF PATIENTS	PERCENTAGE(%)
Yes	47	21.40%
No	173	78.6%



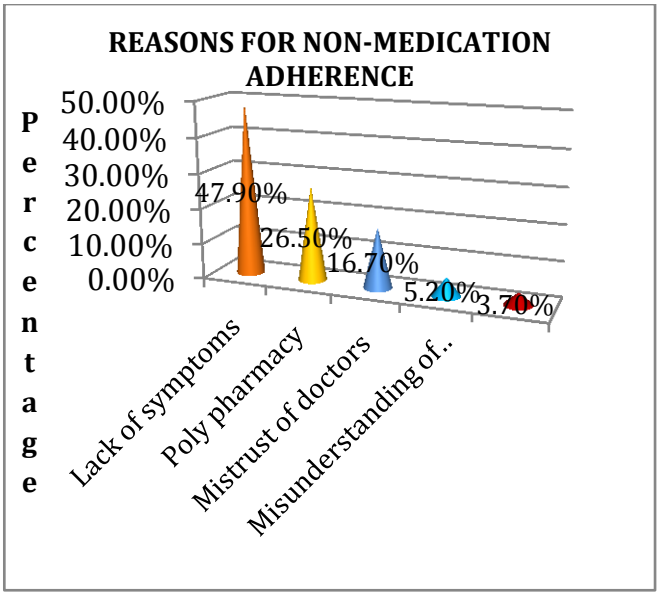
Graph 9:Percentage of patients with medication adherence and not medication adherence.

10. REASONS FOR NON-MEDIACTION ADHERENCE

Among 220 patients, 173 patients were not adhered to the medications.The reasons for non-medication adherence in those patients are due to lack of symptoms 83 (47.9%) ,poly pharmacy 46 (26.5%) , Mistrust of doctors 29 (16.7%) ,misunderstanding of medications 09 (5.2%) ,time taken to see result 06 (3.4%).

Tab 10: Reasons for non medication adherence in patients and its percentage.

REASONS	NO.OF PATIENTS	PERCENTAGE(%)
Lack of symptoms	83	47.90%
Poly pharmacy	46	26.50%
Mistrust of doctors	29	16.70%
Misunderstanding of medications	09	5.20%
Time taken to see result	06	3.70%



Graph 10: Reasons for non medication adherence and its percentage.

11.MEDICATION ADHERENCE

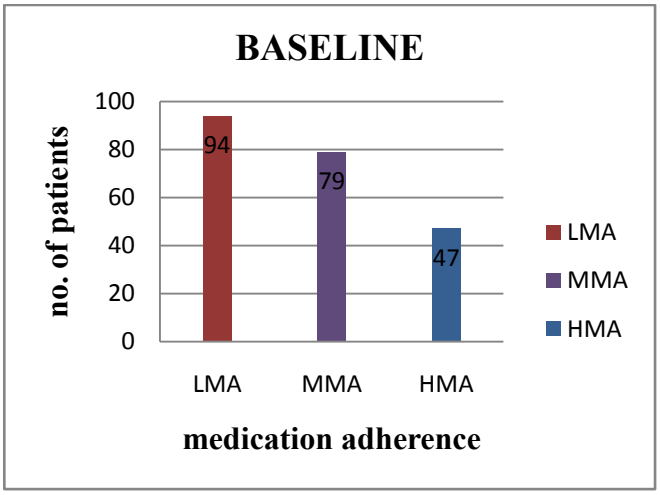
Initially we have interacted with the patients and explained about our work and received INFORMED CONSENT FORM (ICF) from all the patients.

BASELINE

Before counseling, out of 220 patients, 94 were found to be adhered to low medication, 79 were found to be adhered to medium medication and 47 were found to be adhered to high medication adherence.

Tab 11: Medication adherence before counseling.

LOW MEDICATION ADHERENCE	MEDIUM MEDICATION ADHERENCE	HIGH MEDICATION ADHERENCE
94	79	47



Graph 11: Medication adherence of patients.

FOLLOW UP I

During first follow up, 83 were found to be adhered for low medication ,74 were found to be adhered for medium medication and 63 were found to be adhered for high medication.

Tab 12: Medication adherence after first counseling.

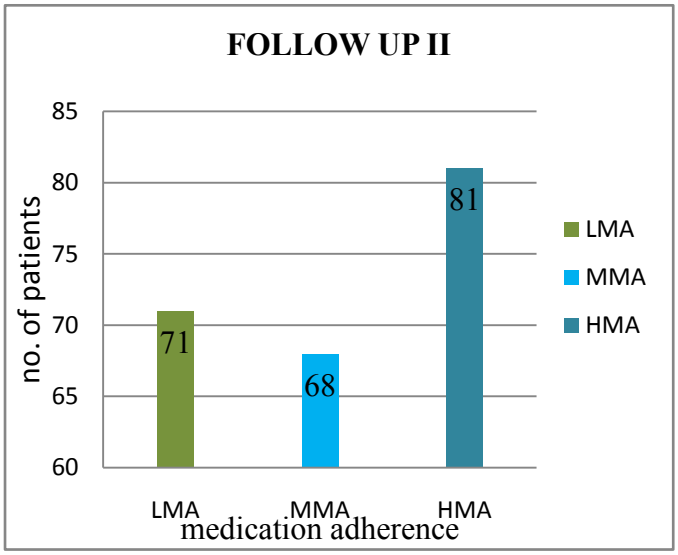
LOW MEDICATION ADHERENCE	MEDIUM MEDICATION ADHERENCE	HIGH MEDICATION ADHERENCE
83	74	63

FOLLOW UP II:

During second follow up, 71 were found to be adhered for low medication,68 were found to be adhered for medium medication and 81 were found to be adhered for high medication.

Tabl14: Medication adherence during second follow up.

LOW MEDICATION ADHERENCE	MEDIUM MEDICATION ADHERENCE	HIGH MEDICATION ADHERENCE
71	68	81



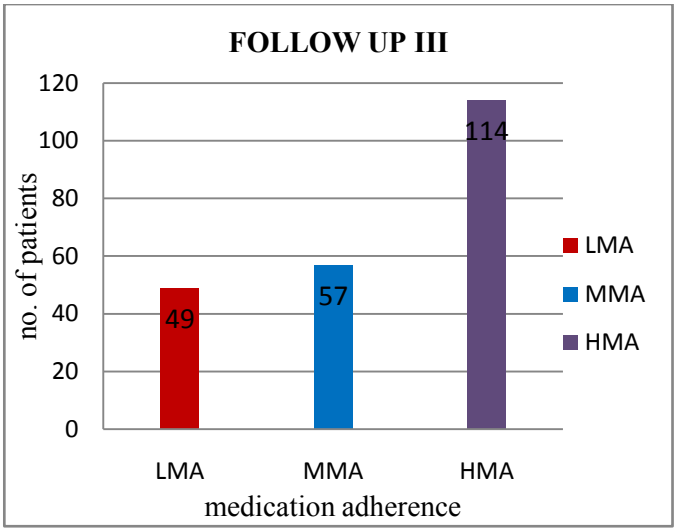
Graph 14: Medication adherence during second follow up

FOLLOW UP III

During third follow up, 49 were found to adhered to low medication, 57 were found to be adhered to medium medication and 114 were found to be adhered to high medication.

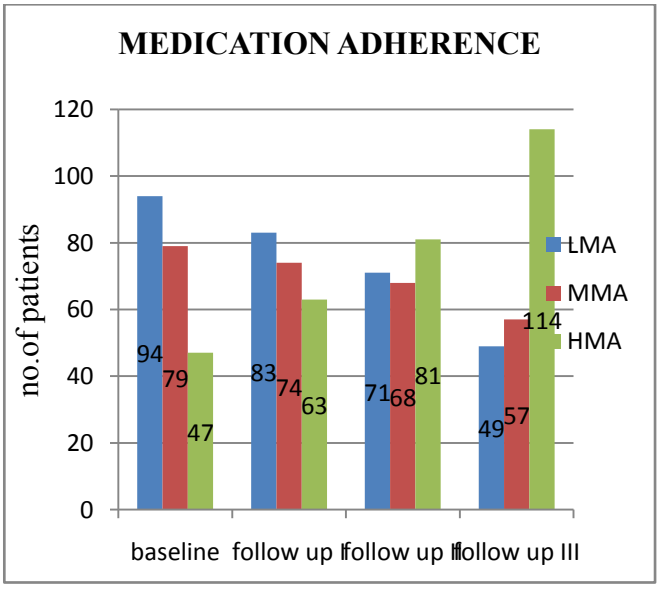
Tab 15 : Medication adherence during third follow up.

LOW MEDICATION ADHERENCE	MEDIUM MEDICATION ADHERENCE	HIGH MEDICATION ADHERENCE
49	57	114



Graph 15 : Medication adherence during third follow up.

Initially we have interacted with patients and explained about our work and received ICF from all the patients. During the first interaction session all the details related to medication adherence of the patients were noted by using a structured questionnaire .Then counseled the patients regarding the importance of medication adherence and severity of the disease.During the second visit ,the first follow up was done and gathered information related to medication adherence and counseled the patients who were still exhibited poor medication .The same process were repeated for 3rd and 4th visits and the results were drawn and analysed.



Graph 16:

LMA—Low medication adherence
MMA—Medium medication adherence
HMA— High medication adherence.

Non medication adherence reasons and pharmacist counselling about medication adherence are the modifiable risk factore and got significant values (p value ≤ 0.05) in student T test (p value 0.0326 & 0.0478) using SPSS Software.

CONCLUSION

Hypertension is the major riskfactor for developing of kidney failure . More patients are prone to CKD when compared to AKD .Kidney failure is mostly observed in men than in women and they are mostly diagnosed with CKD stage **5** .lack of

symptoms is the primary factor for non-medication adherence among people. As there is a clear evidence seen based on data obtained after performing patient counselling and patient education ,we conclude clinical pharmacists could play a vital role in improving the medication adherence among CKD & AKD patients which wil ultimately make the patients free from CKD & AKD .

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