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A Clinical Profile of Patients Undergoing Peritoneal Dialysis in A Teaching Hospital- A Retrospective Study

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Abstract;
BACKGROUND*: Treatment of severe renal failure is dialysis or a renal transplant. Because of lack of kidney donors and poor affordability renal transplants are less common and most people opt for dialysis. Hemodialysis is an expensive procedure requiring costly dialysis machines, a separate dialysis unit, an RO plant and trained technicians and nurses. Intermittent Peritoneal dialysis is cheaper alternative to hemodialysis. In some situations like hemodynamic instability of the patients , peritoneal dialysis is the best alternative.*
AIMS AND OBJECTIVES*: A retrospective of study of clinical profile of patients undergoing Intermittent peritoneal dialysis(IPD) for a period of one year in a teaching hospital in South India. Objective is to study the indications of peritoneal dialysis, gender differences, etiological factors for AKI and CKD in patients undergoing IPD*
Materials and methods*: In this retrospective study , 224 patients admitted in the Department of Nephrology, Andhra medical college, Visakhapatnam, Andhra Pradesh , India, for a period of one year and who underwent peritoneal dialysis were included in the study. An analysis of their case records and dialysis registers is done.*
Results: *Males were more than females. Most common diagnosis for which these patients underwent IPD was chronic kidney disease(CKD) stage 5. Patients with acute kidney injury were less in number. Viral fever was the most common etiology for AKI and chronic interstitial nephritis(CIN) was the most common etiology for CKD.*
Conclusion: *More patients with CKD underwent IPD than patients with AKI. There were less diabetics in our study population. The prevalence of HIV was high in our study.*
Key Word*: chronic interstitial nephritis, chronic kidney disease, acute kidney injury, chronic glomerulonephritis, hemodialysis , peritoneal dialysis*

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I. Introduction

Incidence and prevalence of kidney disease is increasing in India and in the World. Treatment of patients with severe renal failure is dialysis. Hemodialysis is an expensive procedure requiring costly machinery, a dialysis unit , RO plant, trained dialysis technicians and nurses. A cheaper alternative to hemodialysis is intermittent peritoneal dialysis(IPD) which can be done using inexpensive soft PD catheter and inexpensive PD fluids. Soft PD catheter insertion is very easy and can be done bedside and does not require a dialysis unit.

The most important advantage of IPD is that it can be done in patients who are hemodynamically unstable with severe heart failure and poor ejection fraction, patients with hypotension and shock, and patients without vascular access. IPD does not require electricity and can be done in hospitals with frequent power cuts. So IPD can be encouraged in poor countries.

II. Aim

To retrospectively study patients who underwent peritoneal dialysis for a period of one year in the Department of Nephrology , Andhra Medical College , King George Hospital, Visakhapatnam, Andhra Pradesh, India

III. Objectives

1.To study various indications of Peritoneal Dialysis
2. To study gender differences, age groups ,etiological factors for AKI and CKD in patients undergoing peritoneal dialysis
3. To study the prevalence of HIV, HBsAg, and HCV in patients undergoing peritoneal dialysis

IV. Materials and methods

All patients admitted in the Department of Nephrology, KGH , Visakhapatnam between 18-3-2020 and 17-3-2021 requiring peritoneal dialysis are included in the study. All the information is obtained by verifying their case records and registers. The information obtained has been entered into a master sheet from which conclusions were drawn after analyzing the information.

Study design: Retrospective analytical study

Study location: Department of Nephrology, Andhra medical college, King George hospital, Visakhapatnam, Andhra Pradesh, India- A tertiary care teaching hospital in South India

Study duration: One year, from 18-3-2020 to 17-3-2021

Sample size: All the patients who underwent Intermittent Peritoneal Dialysis(IPD) during the study period- 224 patients who received 244 sessions of peritoneal dialysis, were included in the study.

V. Results

Total number of patients who underwent peritoneal dialysis during the study period are 224. Total number of peritoneal dialysis sessions done during the study period are 244. Out of 224 patients, 155(69%) were male and 69(31%)were female. There were 2 patients(0.89%) less than one year of age, 5 patients(2.2%) in the age group 1year to less than 5years, 21 patients(9.37%) in age group 5years to less than 10yrs, 10 patients(4.74%) in the age group 10years to less than 15 years, 1 patient (0.4%) in the age group 15years to less than 20 years, 47 patients(20.9%) in the age group 20 years to less than 39 years, 99 patients(44.1%) in the age group 40 years to 59 years and 39 patients(17.4%) who are more than 60 years of age.

Out of 224 patients , 25 patients(11.1%) were HIV positive, 10 patients(4.4%) were HBsAg positive, and 5 patients(2.2%) were HCV carriers.

Etiological classification- Out of 224 patients , 57(25.4%) patients had AKI, 167(74.6%) patients had CKD out of which 153 had CKD stage 5 and 14 patients had acute of CKD.

Causes of AKI are sepsis 10patients(17.5%), snake bite 3 patients(5.2%), obstructive nephropathy due to carcinoma cervix 4 patients(7%), post partum AKI 6 patients(10.5%), acute gastroenteritis 6 patients(10.5%), malaria 5 patients(8.7%), viral fevers 12 patients(21%)(eg-dengue), acute pyelonephritis 6 patients(11%), multiple metastasis with unknown primary 1 patient(1.7%), electrical burns 1 patient(1.7%), SLE- lupus nephritis 2 patients(3.5%) and multiple myeloma 1 patient(1.7%).

Causes of CKD are chronic interstitial nephritis 76 patients(45.5%) , chronic glomerulonephritis 38 patients(22.7%), ADPKD 5 patients(3%), chronic obstructive nephropathy (eg- carcinoma cervix) 4 patients(2.5%), diabetic kidney disease 38 patients(22.7%), CAKUT(congenital anomalies of kidneys and urinary tract) 1 patient(0.6%)and in some cases etiology of CKD is unknown 5 patients(3%).

Out of 224 patients, 43(19.2%) had diabetes out of which 42 had type 2 diabetes and one patient had type 1 diabetes.

Out of the 43 patients who had diabetes, 18(41.8%) patients had varying degrees of diabetic retinopathy.

Out of 224 patients, 132 (58.9%) had hypertension at presentation (according to JNC 8 guidelines).

Out of 132 hypertensives, 28(21.2%) patients had varying degrees of hypertensive retinopathy.

Thirty five patients had both diabetes and hypertension , of which 9(25.7%) patients had changes of both diabetic and hypertensive retinopathy.

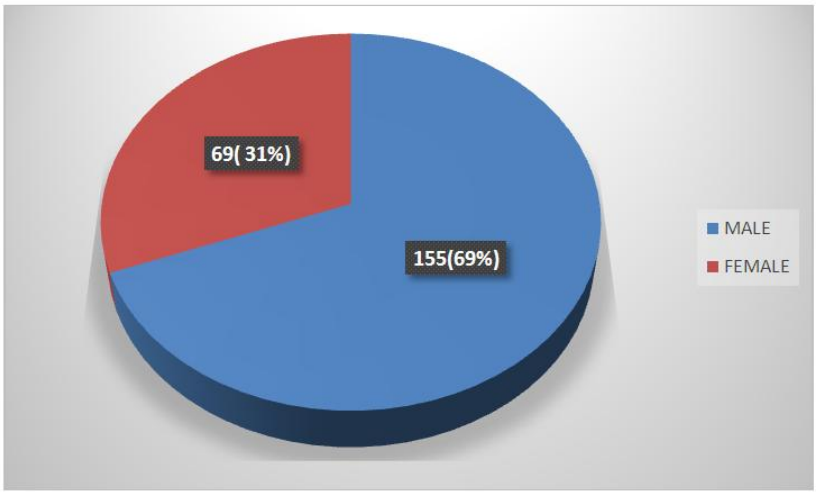

Figure1- Gender difference in PD patients

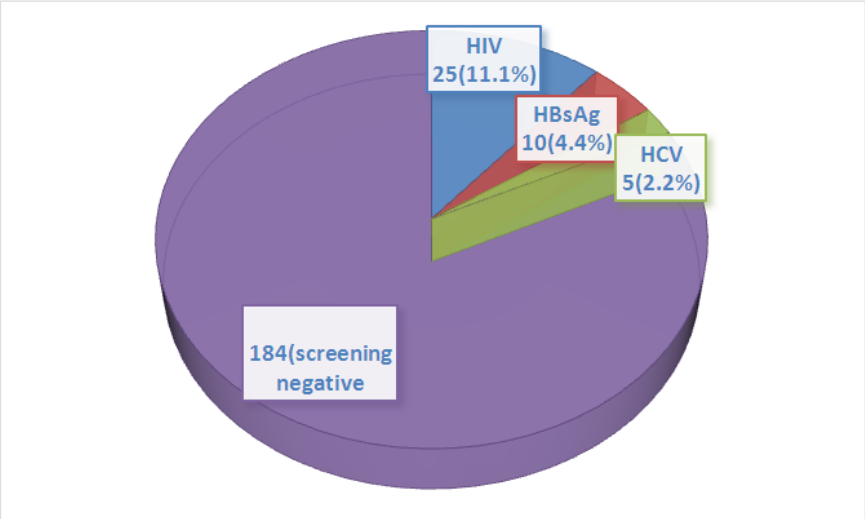

Figure 2- Out of 224 patients, no. of patients with HIV, HBsAg and HCV

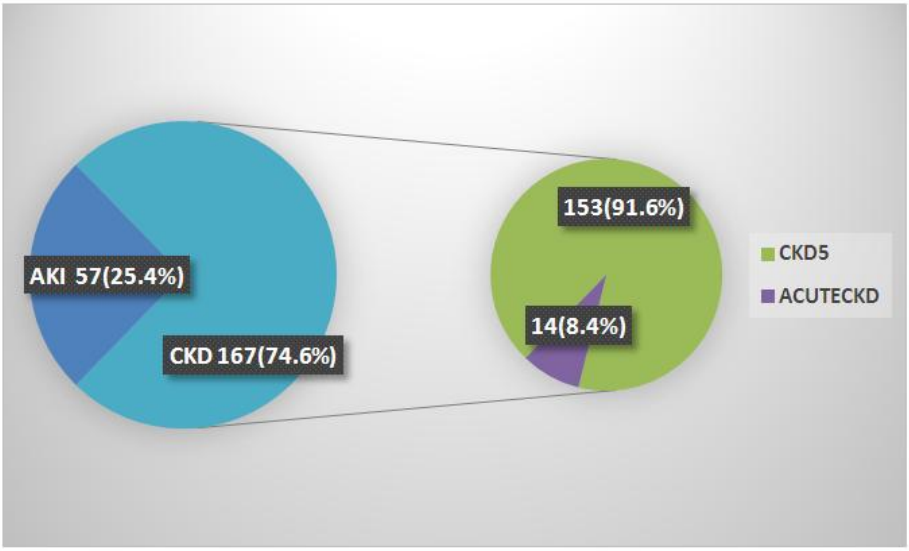

Figure 3- Indications for Peritoneal Dialysis

Table no 1 : Causes of Acute kidney injury in our study

1	Viral fevers
2	Sepsis
3	Post partum AKI
4	Acute gastroenteritis
5	Malaria
6	Acute pyelonephritis
7	Carcinoma cervix
8	Snake bite
9	SLE lupus nephritis
10	Multiple metastasis
11	Multiple myeloma
12	Electrical burns

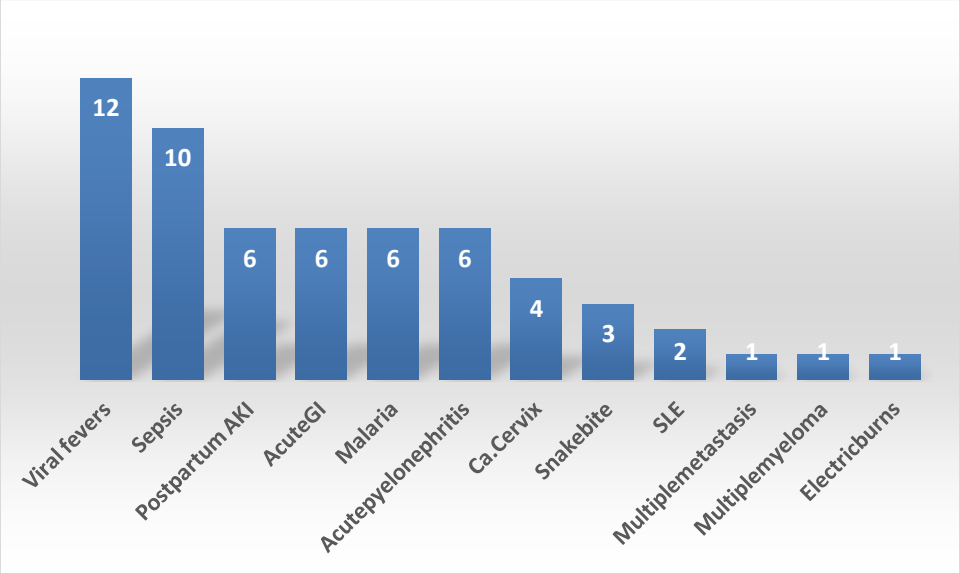

Figure 4- Causes of AKI in our PD patients

Table no 2 : Etiology of CKD in our study

1	Chronic interstitial nephritis
2	Chronic glomerulonephritis
3	Diabetic kidney disease
4	ADPKD
5	Unknown cause
6	Chronic obstructive nephropathy
7	CAKUT

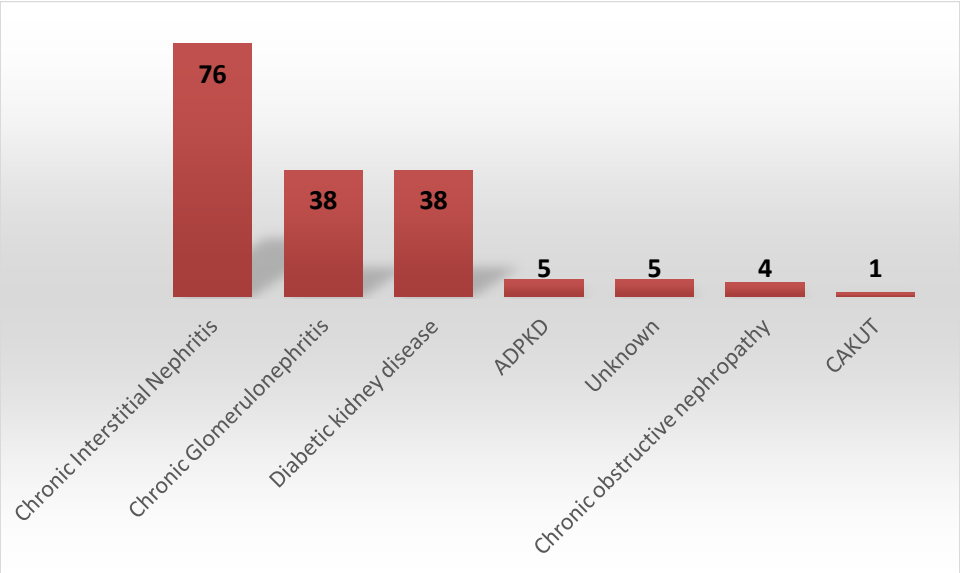

Figure 5- Causes of CKD in our PD patients

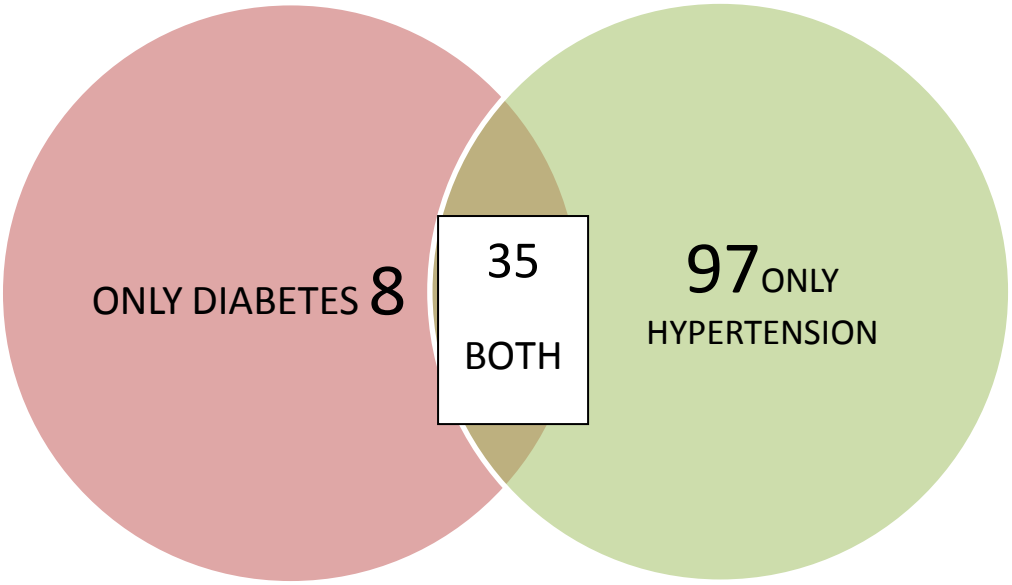

Figure 6 Venn diagram showing number of patients with hypertension alone, diabetes alone and patients with both(n=175)

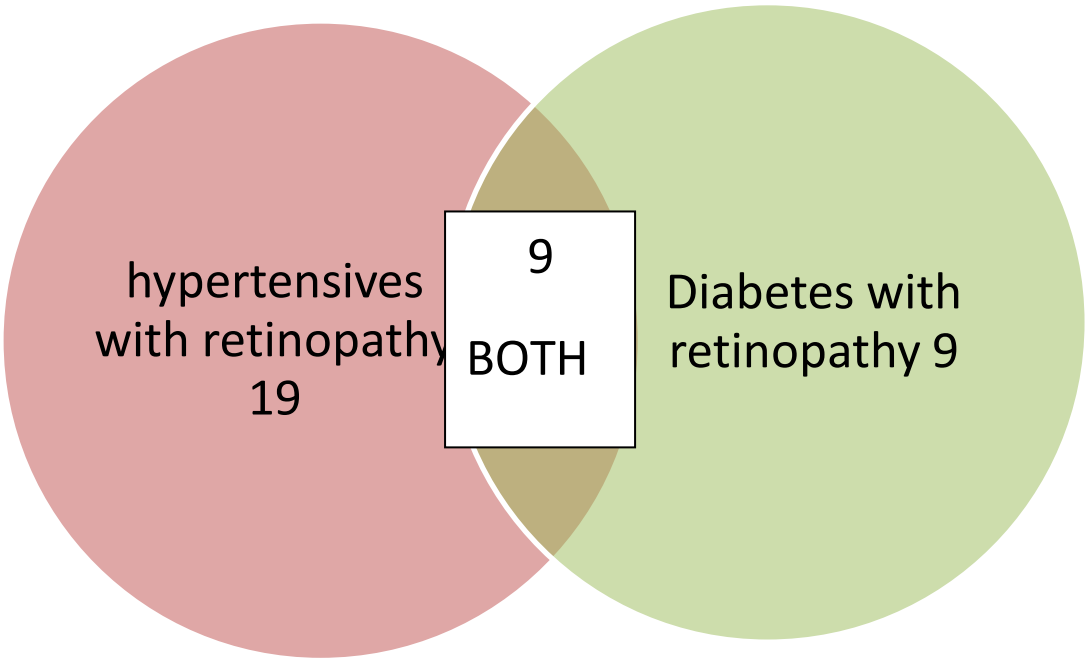

Figure 7- Retinopathy in patients with diabetes alone and hypertension alone and both

VI. Discussion

Usually IPD(intermittent peritoneal dialysis) is done in children. It is also done in adults when there is hemodynamic instability, severe heart failure, shock, and when the patient has no vascular access for dialysis.

In our study , there are more number of males than females which is the same as in other studies. In our study, maximum number of patients are present in the age group of 40 – 60 year. In our study, out of the 25 patients with HIV, 4 patients(16%) had AKI and 21(84%) patients had CKD. All these patients are on ART regimen(renal dosing).

Prevalence of HIV was 11.1% in our study which was high, that was because ours being a government teaching hospital, all HIV patients requiring dialysis are referred to our hospital from all private hospitals.

Prevalence of diabetes is 19.2% in this study which is less than other studies.

Prevalence of diabetic retinopathy among diabetics is 41.2% in our study which is higher than other studies which showed a prevalence of 18-23%. High prevalence of diabetic retinopathy in our study could be because of longer duration of diabetes in patients in our study.

Sepsis was the second most common cause of AKI in our study , but it the most common cause of AKI in studies from other parts of India.

Chronic interstitial nephritis was the most common cause of CKD in our study wheras diabetes is the most common cause of CKD in other studies. The likely reason for the low incidence of diabetic kidney disease in our study could be, most CKD patients coming to our hospital come from an area called Uddhanam in Srikakulam district in Andhra Pradesh, India. In that area , chronic interstitial nephritis is more common.

VII. Conclusion

Viral fever was the most common cause of AKI and CIN(Chronic interstitial nephritis) was the most common cause of CKD in our PD patients. Prevalence of diabetes was less in our study. Prevalence of HIV was high in our study

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