MEDICAL CHANNEL

Case Study

A PATIENT OF CHRONIC KIDNEY DISEASE RECEIVING HAEMODIALYSIS

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SUMMARY:
Chronic kidney disorder is the progressive, irreversible damage to the kidney functions, as a result of which the renal replacement therapy is given in the form of dialysis (haemodialysis or peritoneal dialysis)and renal transplantation depending upon the patient condition, along with the medication therapy and lifestyle modifications .The focus of this study is to check the pharmaceutical care given to the patient of Chronic kidney disease on heamodialysis and the compliance of the patient to the therapy. The outcome of the therapy was to improve the patient's quality of life, slow down the progression of the disease and to avoid the complications associated with the therapy.

Key words: Chronic kidney disease (CKD), Haemodialysis, Pharmaceutical care, Quality of life.

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BACKGROUND

Kidney is the vital organ of our body that has to perform different biological functions like rennin secretion, excretion of the body waste material to maintain the homeostasis balance, regulation of the blood pressure, Vitamin-D activation to maintain the calcium and phosphate balance, acid-base regulation, red blood cell stimulation by erythropoietin production, urine formation and the electrolyte regulation like sodium, potassium, calcium, phosphate, magnesium, chloride. Sodium regulation is regulated by the hormone aldosterone.Vasopressin is a hormone involved in the kidneys, and is responsible for urine concentration and maintaining fluid balance. Chronic kidney disease (CKD) is the progressive, irreversible deterioration of renal functions, usually resulting from long standing disease, sometimes derives from acute renal failure that does not respond to treatment [1]. Chronic kidney disease (CKD) occurs when the glomerulus filtration rate (GFR) falls below 30 ml/min. It is caused by hypertension,

diabetes, polycystic kidney disease, glomerulus disease and acute kidney injury [2].

Aims and objectives:

Todetermine the pharmaceutical care of the end stage chronic kidney disease of the patient to improve the quality of life of that patient.

Case Presentation:

A 45 years old hypertensive female patient diagnosed with end stage renal diseaseand was receiving the heamodialysis from last two years in a tertiary care hospital of Lahore Pakistan .She was married and a house wife. She was also overweight. Physician suggested totake the haemodialysis procedure two times a week with the prescribed medicine.She was admitted to HCV negative haemodialysis ward for the heamodialysis procedure.

History of present illness:

The patient experiencing the chief complaints of abdominal distention, weakness, hyperurecemia, hyperphosphatemia, hypocalemia, shortness of breath and anemia. So she decided to visit her physician.

TREATMENT:

I. Pharmacological treatment:

She was advised to visit the hospital 2 times a week for her heamodialysis procedure and take the prescribed medicines regularly as recommended.

II. Non-pharmacological treatment:

The progression of the disease can be reduced by taking the medication along with dietary and lifestyle modifications. This can also improve the patient quality

Stages of the CKD

CKD is classified into five different stages that are described below: [3]

Stages	Qualitative discription	Renal function (ml/min/1.73 m2)	Actions
1	Kidney damage but normal GFR	≥90	Diagnosis and treatment. Treatment of comorbid conditions. Slowing progression CVD risk reduction
2	Kidney damage with mind decrease in GFR	60-89	Estimating progression
3	Moderate decrease in GFR	30-59	Evaluating and treating complications
4	Severe decrease in GFR	15-29	Preparation for kidney Replacement and dialysis
5	End stage renal disease	<15	Replacement (if uremiapresent) and dialysis

History of past illness:

Chronic history	She was suffering from chronic kidney disease from last 2 years and she was on haemodialysis from past 2 years.
Social history	She belonged to the middle class family.
Family history	Her mother was hypertensive
Occupational history	Housewife
Allergy	No significant allergies ware found

General examination:

Height	162cm
Weight	78 kg
BMI	29.7
Pulse rate	88beats/mmHg
BP	160/100mmHg
Temperature	98 F

Lab investigations:
Hematological examination

	Result	**Unit**	**Normal value**
Haemoglobin	9.8	g/dl	F 11.5-15.5
Platelet count	208	10^9/l	150-450
WBC count	5.8	10^9/l	4-11
ESR (fall in 1st hour)	90	Mm/1st hour	0-29

Urine examination

Test	**Test value**
pH	**4.8**
Specific gravity	1.020
albumin	+
Blood cells	++

Coagulation test:

COAGULATION TEST	**VALUES**	**NORMAL**
PT	12 SEC	12-17 SEC
APTT	33SEC	28-35 SEC

Renal Function test:

TEST	**VALUE**	**NORMAL**
Urea	**172.5mg/dl**	7-20mg/dl
Creatinine	**9.0mg/dl**	0.7-1.1mg/dl
Uric Acid	**6.9 mg/dl**	2.4-6.0mg/dl

Prescribed Medicines:

Brand name	GENERIC	Strength	Frequency	Indications
Selanz-SR	Lansoprazole	30mg	One tablet once daily before breakfast	For the stomach issues
Adalat- R	Nefidipine	20mg	One tablet after every 6 hours	To control B.P
Tropine INJ	Erythropoitin	4000 IU	Subcutaneously after every dialysis	For anemia
Zyloric	allupurinol	100 mg	One tablet once daily	For hyperurecemia

of life. Take the fluid in the limited amount to maintain the fluid status in the body. Take the high calories low protein diet. We can also recommend the kayexalate powder to such patients. Maintain the body weight and do exercise regularly as advised by the physician. Limit the intake of salt and potassium. Avoid soft drinks that contain phosphates. Avoid fatty food. Increase the fiber intake such as vegetables and fruits.

THERAPY OUTCOMES:

The treatment objectives are:

1. To improve the patient comfort and prolong the life.
2. To treat the systemic manifestations of Chronic kidney disease (CKD)
3. Correct the body chemistry abnormalities.

FOLLOW UP:

1. Visit the hospital for the hameodialysis 2 times a week.
2. Maintain the electrolyte balance
3. Vitals must be checked before every procedure of the heamodialysis.
4. Take your medicines regularly, as prescribed by the physician, to avoid the complications.
5. Regularly monitor the glucose levels and blood pressure.

DISCUSSION:

The incidents of Chronic kidney disease (CKD) are increasing day by day worldwide[4].The estimated annual cases of end stage renal disease are greater than 100 per million populations in Pakistan [5]. The chronic kidney disorder causes byhypertension, diabetes,acute kidney injury, glomerulonephritis, polycystic kidney disease, drug induced [6]. The several complications may occur in the patient of Chronic kidney disease (CKD). The excretion of electrolytes through kidney is impaired causing the electrolyte imbalance. In addition to the serum hyperphosphtemia, the levels of calcium decreases occur due to which the patient may suffer from bone demineralization, fractures. Hyperkalemia causes the neuromuscular irritability which results in tingling sensation in fingers , restlessness, stomach cramping ,diareahea.the secretion of erythropoietin is also reduced due to kidney damage as a result of which the RBC'S production in the bone marrow decreases as a result of which anemia occurs. The levels of creatinine and urea clearance are also affected. As, the glomerulus filtration rate (GFR) decreases the levels of serum creatinine and decreases the urea clearance. The accumulation of urea causes the anorexia, nausea, vomiting and pancreatitis [7].

The metabolic acidosis is very common in the Chronic kidney disease (CKD) patients as the bicarbonate ions (HCO3-) not formed and accumulation of hydrogen (H+)Ions occurs in the body due to impaired kidney. Theconventional managerial approach to treat the Chronic kidney disease (CKD) includes the dialysis and kidney transplantation.

The dialysis patients often complainthe weakness, fatigue, difficulty in motion. This can be reduced by giving the physical therapy to the patient which will improve her quality of life.

Dialysis can be Haemodialysis or Peritoneal dialysis. In haemodialysis, the blood is removed from the body and filtered through artificial man –made membrane called dialyzer (artificial kidney) to remove the wastes and extra fluid from blood. The whole procedure requires 3-5 hours a day and done 3 times a week

depending upon the patient condition. The most common disadvantage of haemodialysisis that the patient feel tired on the day of procedure [4].

In peritoneal dialysis, catheter is placed in the peritoneal cavity and inserted the dialysis fluid called diasylate to remove the waste and extra fluid from the body. The peritoneal dialysis is done on the ambulatory patients [8].

The greater expertise is required in the dialysis otherwise the patient may suffer from the serious complications like air embolism, CVS problems, hepatitis, hyperglycemia, nausea, vomiting, anemia.

CONCLUSION:

Chronic kidney disease (CKD) is the growing problem worldwide and increasing day by day. The complications of the Chronic kidney disease (CKD) can be minimized by the medications and lifestyle modifications. The focus of this study was to check the proper pharmaceutical care given to the Chronic kidney disease (CKD) patient on hameodialysis to identify whether the care given to the patient is according to the patient needs or not. The therapy given to the patient must be safe, effective and the patient must be compliant to the therapy in order to avoid the further progression of the disease.

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NOTE: