

# Clinical Profile of End Stage Renal Disease Patients Undergoing Hemodialysis in a Tertiary Hospital of Lumbini Province, Nepal

Sanket Kumar Risal<sup>1</sup>, Paras Shrestha<sup>1</sup>, Rajesh Kumar Mandal<sup>1</sup>,  
Nirajan Bhandari<sup>2</sup>

<sup>1</sup>Consultant Physician, Department of Internal Medicine, Bheri Hospital, Nepalgunj, Nepal

<sup>2</sup>Medical Officer, Department of Emergency, Bheri Hospital, Nepalgunj, Nepal

Corresponding Author: Dr. Sanket Kumar Risal

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## ABSTRACT

**Background:** Data regarding the clinical profile of end-stage renal disease (ESRD) and dialysis in Mid western Nepal are scarce and knowledge about the spectrum of renal disease is very limited. This study was about the clinical profile of patients with ESRD in a tertiary hospital of Lumbini province of Nepal.

**Materials and Methods:** This was a retrospective, observational study carried out in a dialysis unit in a tertiary hospital. Forty patients who were on maintenance haemodialysis on regular a basis in the hospital for at least 3 months were selected for the study. Patients' demographic, clinical data and laboratory parameters were recorded in preformed performa. Data were entered into Statistical Package for the Social Sciences 21 and descriptive analysis was done.

**Results:** Most of the patients were in the age group 20 to 60 years 33(82.5%). Male: female ratio of 1.6:1. Most common cause for end stage renal disease was hypertension followed by diabetes. Anaemia, hypocalcaemia and hyponatremia were found to be the common complications associated with the patients.

**Conclusion:** Early diagnosis and treatment of hypertension and diabetes may be the key to decrease the incidence of chronic kidney disease patients and also halt the progression to End stage renal disease.

**Keywords:** Chronic kidney disease, haemodialysis, end stage renal disease

## INTRODUCTION

Chronic Kidney Disease (CKD) is a major public health problem worldwide, with a significant burden of morbidity and mortality. It is now recognized as a major public health problem in Nepal <sup>1</sup>. CKD, called end-stage renal disease (ESRD) refers to the kidneys' inability to maintain homeostasis and requires patients to rely on a renal replacement therapy (RRT). Hemodialysis continues to be the predominant RRT modality in developing country.<sup>2</sup>

CKD is also associated with substantial morbidity, mortality and healthcare costs. Although it is largely preventable, over 9% of the population worldwide is estimated to be affected by the condition, particularly developing countries and it is associated with diabetes type II, hypertension and obesity, which are also growing at an alarming rate.<sup>3</sup>

An eGFR level of less than 15 mL/min/1.73 m<sup>2</sup> was defined as the final stage of CKD.<sup>2</sup> The present study was conducted to find out the demographic, clinical and etiological profile of the CKD patients on hemodialysis

attending to a tertiary care hospital in Nepalgunj, Nepal.

## MATERIALS & METHODS

The study was a retrospective, observational study based on the medical records of the patients' attending Hemodialysis Unit in Bheri Hospital Nepalgunj between November 2022 to December 2022. The ethical clearance for the research was taken from Hospital Administration and Nepal Health Research Council. Medical records of 40 patients were retrieved and data was collected according to performa. Socio demographic profiles including age, sex and clinical data including etiology, duration of CKD, duration of hemodialysis and laboratory parameters including hemogram and renal function test were recorded. Data were entered into Statistical Package for the Social Sciences 21 and descriptive analysis was done and expressed as percentages, ratios and mean values. The results were presented in tables and charts.

## RESULT

This study included 40 patients of end stage renal disease. Out of which 25 were males and 15 were females with male: female ratio of 1.6:1. Most of the patients were in the age group 20 to 60 years 33(82.5%).

**Table 1: Age and sex distribution in ESRD N=40**

Age group	Male (%)	Female (%)	N (%)
10-20	1 (2.5)	0	1 (2.5)
21-30	4 (10)	1 (2.5)	5 (12.5)
31-40	6 (15)	5 (12.5)	11 (27.5)
41-50	3 (7.5)	2 (5)	5 (12.5)
51-60	8 (20)	4 (10)	12 (30)
61-70	1 (2.5)	2 (5)	3 (7.5)
71 and above	2 (5)	1 (2.5)	3 (7.5)

Mean: 45.75 SD: 15.20

**Table 2. Causes of CKD N=40**

Causes of CKD	Number
Hypertension	36
Diabetes	9
Chronic Glomerulonephritis (CGN)	2
Obstructive	2
Unknown	1

**Table 3: Lab parameters N=40**

Lab value	mean	SD	Min	Max
Haemoglobin (gm %)	7.96	1.76	4.2	11.6
Sodium (mmol/L)	134.24	3.77	128	143
Potassium (mmol/L)	5.07	1.27	3.1	8.5
Uric acid (mg/dl)	5.94	1.49	3.3	8.7
Calcium (mg/dl)	7.72	1.15	5.9	10.1
Phosphate (mg/dl)	5.57	1.82	2.3	9.2

**Table 4: Complications/Electrolyte disturbances in ESRD cases N=40**

Complication	Number
Anemia	39
Hypocalcemia	28
Hyperkalemia	8
Hyponatremia	25
Hyperuricemia	3
Hyperphosphatemia	2

## DISCUSSION

Out of 40, 25 were male with M:F 1.5: 1 ratio which were similar to study done at Pokhara<sup>4</sup> and kathmandu.<sup>5</sup> It is similar with the study from India and cameroon.<sup>6,7</sup> Mean age was 45.75 and most of the patients were in between 30 to 60 age group. This finding was similar to various studies from Nepal, India and cameroon.<sup>4-8</sup> The age group 20 to 60 is the most productive age group which affects the economy of the country. Country should bring public health programmes for prevention of CKD and to delay progression to ESRD and replacement therapy. Age of progression of CKD in different States of The United States was above 62 years.<sup>4</sup> Developing countries have lower age due to lack of proper health facilities, poverty and untimely follow up.

Most of the people had hypertension followed by diabetes as a cause of CKD. Hypertensive nephropathy has been a major cause of CKD in study from India.<sup>6,9</sup> Diabetes nephropathy has been major cause in studies.<sup>4,10,11</sup> Other causes were CGN and obstructive uropathy. CKD is diagnosed at later stages. Due to uncontrolled diabetes and hypertension the people land up in CKD. Lack of regular health checkup and screening of hypertension and diabetes may be the reason for later presentation. Hemodialysis is free of cost in Nepal at various Government centers throughout the country. More and more patients who

previously couldn't afford haemodialysis are getting this service.

Most of the patients had anemia which is similar with the studies from Pokhara and Kathmandu.<sup>4,5</sup> Another study from Bangalore India also had anemia in most of the patients.<sup>6</sup> Lower hemoglobin may result from the loss of erythropoietin synthesis in the kidneys and or the presence of inhibitors of erythropoiesis.<sup>12</sup> However due to cost issues, patients can't afford erythropoietin analogues therapy regularly. Most patients rely more on blood transfusion for anaemia correction. Hyponatremia has been found in more than half of the cases. This may be due to salt restriction and over use of diuretics. This finding is inconsistent with another study.<sup>4</sup> Hyperkalaemia was seen in one fifth of cases; this may be possibly due to dependence on blood transfusion for correction of anaemia.<sup>4</sup> Hypocalcaemia was also a common finding in the patients. It needs to be corrected through medical supplements and diet. Low economic status may have played a role.

## CONCLUSION

Hypertension and diabetes were the leading cause of End stage renal disease in the most of the patients. Early diagnosis, treatment and proper follow up of the risk factors will be the key to prevent progression of chronic kidney disease in to the end stage requiring hemodialysis or Renal Transplant.

## Declaration by Authors

**Ethical Approval:** Approved

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**Conflict of Interest:** The authors declare no conflict of interest.

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