

Frequency of Anemia in Chronic Kidney Disease Patients Presenting at Civil Hospital Quetta

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ABSTRACT

Objective: The management and assessment of anemia is poorly understood in Balochistan. To determine frequency of anemia associated with chronic kidney disease patients admitted in Tertiary Care Hospital at Quetta Balochistan.

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Medicine Department Sandeman Provincial Hospital Quetta, from January, 2019 to June, 2019 for a period of six months.

Materials and Methods: 106 patients who met the diagnostic criteria were included. Mean age in our study was 48.38±7.89 years. Mean duration of CKD in our study was 3.89±1.66 days.

Results: Out of 106 patients who developed chronic kidney disease patients, 26 (24.52%) had anemia and 80 (75.47%) did not have anemia. The data result shows that the anemia due to chronic kidney disease was more in male 18(16.98%) as compared to female patients 8(7.54%). Frequency distribution of age showed that 06 (5.66%) were in age group 30-40 years, 12 (11.32%) patients were in age group 41-50 years and 8 (7.54%) patients were belonging to age group 51-60 years with anemia in chronic kidney disease. The anemic patient's distribution in different stage of CKD showed that, 02 (1.88%), 3(2.83%), 6 (5.66%), 8 (7.54%) and 7 (6.60%) were in CKD stage 1, 2, 3, 4 and 5 respectively.

Conclusion: Anemia arise severe problems of chronic kidney disease. Correction of anemia may improve renal and is a significant middle marker of CKD so it might be valuable to measure hemoglobin even at overall screening. Early discovery of CKD is of highest position to stop the development of renal failure.

Key Words: Chronic kidney disease, anemia and end stage renal disease

Citation of article: Samreen Z, Zehri MT, Wali S, Sasoli NA, Sadiq A, Hussain A. Frequency of Anemia in Chronic Kidney Disease Patients Presenting at Civil Hospital Quetta. Med Forum 2021;32(7):32-35.

INTRODUCTION

Chronic Kidney Disease (CKD) recognized worldwide public health problem and anemia is the complex complication of progressive CKD.¹The prevalence of CKD in India in difference populations is about 0.16% and further renal illness is about 0.7%.². The current population grounded study evaluated the frequency at 150-200 cases per million populations each year in India.³

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Received: March, 2021
Accepted: May, 2021
Printed: July, 2021

A lack of iron in red blood cells diminishes tissue oxygen transport, increments cardiovascular output, and may bring about ventricular expansion and hypertrophy, whenever left untreated. The primary reason of iron inadequacy is expanded interest for iron, iron misfortune, and often case in chronic kidney disease diminished iron absorption, or incendiary iron block.⁴

Anemia of chronic kidney illnesses might be because of deficient creation of erythropoietin by unhealthy kidneys, decreased RBC endurance, iron or nutrient insufficiencies, bleeding bruise, chronic inflammation, hyperparathyroidism as well as comorbidities.⁵ Iron inadequacy likewise can create in hemodialysis patients getting erythropoiesis animating agents, create cause an expanded interest for iron; blood misfortune from dialysis is another reason for iron lack.⁶ Patients with diabetes have an increased hazard of anemia, in addition anemia itself is an autonomous danger factor for persistent kidney infection.⁷⁻⁸

Symptoms of iron lack incorporate weakness, exhaustion, anorexia, a sleeping disorder, tachycardia, dyspnea, angina, diminished mental and actual performance, and perhaps cardiac failure. In spite of the fact that weakness remedy in CKD has been displayed to moderate the movement of renal illness and progress

complete worth of life, iron deficit anemia leftovers undiagnosed and under treated.^{4,9,10}

Since both beginning phase anemia and CKD are generally asymptomatic, kidney and hematologic research facility esteems ought to be checked yearly in patients at risk.^{2,3,8} Because the glomerular filtration rate (GFR) diminishes with reformist CKD, the danger of anemia increments by about 27% in stage 1 to stage 5 (GFR <15 ml / min) becomes 76%.^{7,11}

Anemia was existing in 68% of all patient’s initial hemodialysis. Iron deficit was a common feature happening in 29% of patients pleasing erythropoietin and 26% of patients without erythropoietin.¹² In another study in USA, the current anemia prevalence was 15.4% patients with CKD. The global prevalence of anemia augmented through stage of CKD, since 8.4% at 1 stage to 53.4% at 5 stage. The anemia prevalence in individuals without CKD were 6.3%.¹³

Therefore, this study is designed to generate local data and to estimate the current magnitude of iron deficiency anaemia in CKD cases. If the burden will be found to be high, then screening will be recommended in all subjects prior to initiation of dialysis then timely decision could be taken for treatment and thereby preventing further morbidity.

MATERIALS AND METHODS

Study Design: Cross sectional study.

Study Setting: This Study was conducted at department of Medicine, Sandeman provincial Hospital, Quetta.

Sample Size: Anemia in patients with CKD¹³ was 15.4%, confidence level 95%, absolute precision 7% and the required sample size came out to be 103 patients meeting the inclusion criteria.

Sampling Technique: Cross sectional study

Sample Selection: The patients with chronic kidney disease for more than 3 months were included. Male and female of age 30-60 years were included in data. The patients with known bleeding disorder were excluded from trail. The patient with sickle cell anemia, multiple and myelodysplastic syndrome were excluded from trail.

Data Collection Procedure: Consecutive patients with findings fulfilling the inclusion criteria visiting outpatient department of Medicine Civil Hospital Quetta was included. Determination and procedure of this study was described; confidentiality was assured and knowledgeable consent was taken for the inclusion in the study. A phlebotomist drew 2 cc venous blood after taking aseptic measures and the sample was send for hemoglobin estimation from the institutional laboratory. Presence of hemoglobin level ≤ 13 g/dL in male and ≤ 11g/dL in female was labeled as anemia positive. This information along with demographics like age, gender, stage of CKD and duration of CKD was noted in the proforma.

Data Analysis Procedure: Statistical analysis was performed on SPSS version 18 software. Continuous variables like age and duration of CKD was presented by mean +/-SD (standard deviation). Similarly, the categorical variables like gender, stage of CKD and anemia was presented by frequency and percentages. Effect modifiers like age, gender, duration of CKD and stage of CKD was taken care by stratification. Post stratification chi square test was useful taking p value of ≤ 0.05 as significant.

RESULTS

A total of 106 patients with CKD patients visiting Department of Medicine, civil Hospital, Quetta who met the inclusion and exclusion standards were comprised in this study.

Out of 106 patients lowest age of the patient was 37 while extreme age of the patients was 58 years. Mean age in present study was 48.38 years thru the standard deviation of ±7.89. Mean duration of CKD in our study was 3.89±1.66 days as shown in Table-1.

Table No.1: Described Statistic of Patients Admitted in Hospital

Variable	Mean	Standard Deviation	Min-max
Age (years)	48.38	±7.89	37-58
Duration of ckd (years)	3.89	±1.66	1-5

Out of 106 patients who developed chronic kidney disease patients, 26 (24.52%) had anemia and 80 (75.47%) did not have anemia as shown in Figure 1.

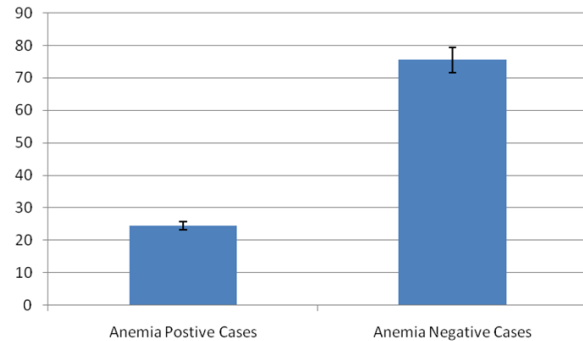


Figure No.1: Overall percentage of Anemia patients in CKD

The data result shows that the anemia due to chronic kidney disease was more in male 18(16.98%) patients as compared to female patients 8(7.54%) as shown in Table-2.

Table No.2: Detail of gender with anemia

Gender	Anemia	
	Yes	No
Male	18 (16.98%)	35 (33.01%)
Female	8 (7.54%)	45 (42.45%)
Total	26 (24.52%)	80 (75.46%)
P-value 0.46		

Frequency distribution of age of patients showed that 06 (5.66%), were age group 30-40 years, 12 (11.32%) patients have age group 41-50 years and 8 (7.54%) patients were in age group 51-60 years with anemia in chronic kidney disease as shown in Figure-2.

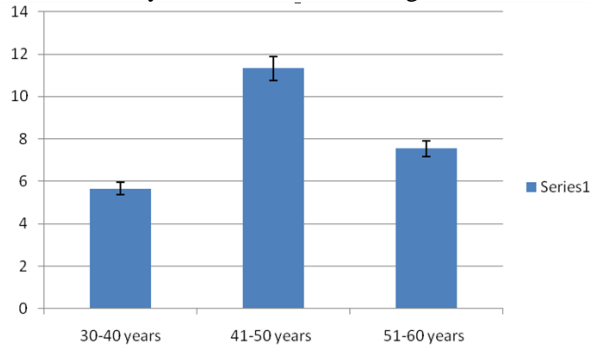


Figure No.2: Age wise distribution of Anemia patients in CKD

The anemic patient’s distribution in different stage of CKD showed that, 02 (1.88%), 3(2.83%), 6 (5.66%), 8 (7.54%) and 7 (6.60%) were in chronic kidney disease stage 1, 2, 3, 4 and 5 correspondingly as shown in Figure-3.

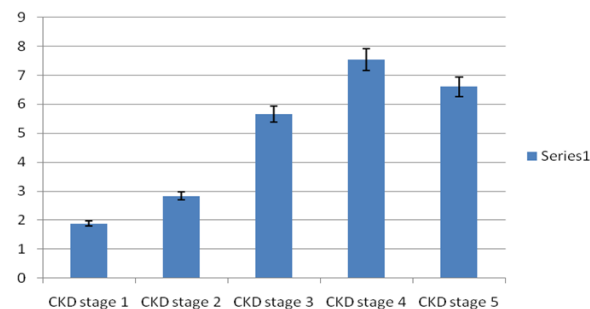


Figure No.3: Anemia distribution in different stage of CKD

DISCUSSION

Chronic kidney illness is a universal public health problematic. Main consequences of CKD comprise the development of CKD for the elimination of stage renal disease, the development of various difficulties due to kidney failure and the increase danger for development of cardiovascular sickness. Quite possibly the most common difficulties of CKD are anemia associated with augmented risk for cardiovascular illness, affects patients and deaths due to an increased risk especially in the high-risk group.

A total of 106 patients with chronic kidney disease patients visiting department of Medicine, Sandeman Provincial Hospital, Quetta were included. Mean age in our study was 48.38±7.89 years. Mean duration of CKD in our study was 3.89±1.66 days.

Out of 106 patients who developed chronic kidney disease patients, 26 (24.52%) had anemia and 80 (75.47%) did not have anemia. A study done in USA revealed that an assessed 14.0% adult people of US had

CKD. Anemia stood twofold as predominant in individuals with CKD (15.4%) as in the overall population.¹³

The data result shows that the anemia due to chronic kidney disease was more in male 18(16.98%) patients as compared to female patients 8(7.54%). Contrast with our study Anemia was recognized in 51.3% men and 48.7% women. The occurrence of anemia augmented associated progressing CKD stage.¹⁴ Frequency distribution of patients age showed that 06 (5.66%), were age group 30-40 years, 12 (11.32%) were age group year 41-50 and 8 (7.54%) patients were in age group 51-60 years with anemia in chronic kidney disease. Gunaseelan et al reported that 24.7% prevalence of cases was age group of 51 - 60 years.¹⁵ The anemic patient’s distribution in different stage of CKD showed that, 02 (1.88%) CKD stage 1, 3(2.83%) CKD stage 2, 6 (5.66%) CKD stage 3, 8 (7.54%) CKD stage 4 and 7 (6.60%) CKD stage 5. Previous study showed the incidence of anemia in CKD stage I (17.64%), Stage II (27.78%), Stage III (48.38%), stage IV (74.19%), stage V (80%).¹⁶ Early identification of anemia in CKD retards the development of end stage renal disease and consequently improves morbidity and mortality.

CONCLUSION

Anemia is one of the many complications of chronic kidney disease (CKD). Correction of anemia may improve renal and significant middle indicator of CKD hence it could be suitable to degree hemoglobin smooth at overall screening. Primary discovery of CKD is of highest position to stop the development of renal failure. Our study found high occurrence of anemia in to entirely stages of CKD. Hemoglobin lower 9 g/dl, would be needed treatment. Nevertheless, we must evade ignoring patients with severely anemia (10 g/dL hemoglobin).

Author’s Contribution:

- Concept & Design of Study: Zohra Samreen
- Drafting: Muhammad Tahir Zehri, Shah Wali
- Data Analysis: Nazeer Ahmed Sasoli, Abdul Sadiq, Ashiq Hussain
- Revisiting Critically: Zohra Samreen, Muhammad Tahir Zehri
- Final Approval of version: Zohra Samreen

Conflict of Interest: The study has no conflict of interest to declare by any author.

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