



TO STUDY CLINICAL PROFILE OF ANEMIA AND EFFECT OF ERYTHROPOIETIN IN CHRONIC KIDNEY DISEASES PATIENT

General Medicine

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KEYWORDS

INTRODUCTION

- Chronic Kidney Disease (CKD) is a major health care problem worldwide, with a global prevalence of 8-16%.¹ With the increase in the life expectancy and increase in the prevalence of lifestyle disease there is increase in prevalence of CKD.
- The kidney disease outcome quality initiative (KDOQI) of National Kidney Foundation's guideline defines CKD "as kidney damage or estimated GFR (GFR<60 ml/min/1.73m²) for more than equal to 3 months"².
- Chronic Kidney Disease leads to a wide range of systemic derangements. Anemia is a very common manifestation among patients of CKD.^{3,4} As the renal dysfunction increases in severity, there is proportional increase in prevalence and severity of hematological impairment.
- Pathophysiologically, Anemia in patients of CKD is determined by multiple factors.⁷ The most important and primary factor is the insufficient production of Erythropoietin (EPO) by the damaged kidneys. Kidney is a major site for EPO production, contributing 80-90% of total EPO in circulation (rest 10-20% produced in liver). As renal disease progresses specialized peritubular cells that produce EPO are partially or completely depleted or injured resulting inappropriately low EPO levels resulting in progressive Anemia.
- Other important factors contributing to development of Anemia in CKD include nutritional deficiencies (Iron, folate or vitamin b12), increased blood loss, systemic and chronic inflammatory state, hyperparathyroidism, and shortened red cell survival by uremic toxins and drugs
- Anemia is an important contributing factor in the clinical manifestations associated with deteriorating renal function. Anemia has a major impact on their sense of wellbeing as well as impairing their ability to work. There is increased incidence of cardiovascular dysfunction, cognitive impairment and sleep disturbances in anemic patients with CKD.

AIMS AND OBJECTIVE

AIM:

- To study clinical profile of anemia and effect of erythropoietin in chronic kidney diseases patients.

OBJECTIVES:

- To study anemia in chronic kidney disease patients.
- To study effect of recombinant erythropoietin on anemia in chronic kidney disease patients.

MATERIALS AND METHOD

In present study, 60 cases of chronic kidney disease that were being treated at Sir Takhtasinhji hospital, Bhavnagar were selected.

INCLUSION CRITERIA

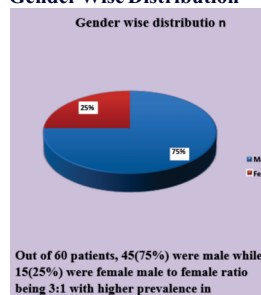
- Patients aged >18 years
- Patients who had given written informed consent to participate in the study.
- Patients who had blood hemoglobin value of <13% by automated cell counter/ drabkin's method.
- Patients who were vitally stable with CKD in predialysis period and while undergoing dialysis.
- on a continuing basis (intervals of four week)

EXCLUSION CRITERIA

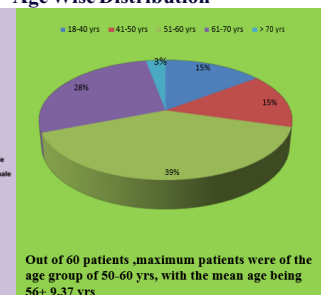
- Females who were pregnant, lactating.
- Patients with known or suspected hypersensitivity to cell derived products and/or to human albumin
- Patients who had other cause of anemia like active haemolysis, poisonings, systemic hematologic diseases any liver disorder.
- Malignancy
- All the patients were thoroughly investigated, other causes of anemia were ruled out and were treated with erythropoietin. Patients' hematological parameters like hemoglobin level and reticulocyte count were observed regularly and their response to the study drug was assessed on a continuing basis (intervals of four week)

OBSERVATION AND RESULTS

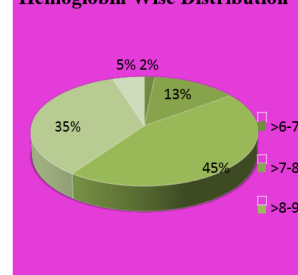
Gender Wise Distribution



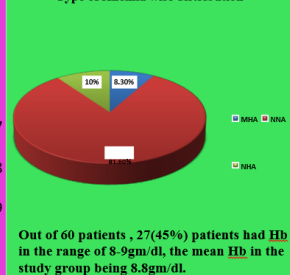
Age Wise Distribution



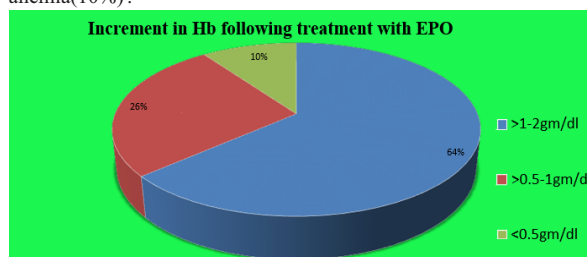
Hemoglobin Wise Distribution



Type of Anemia wise distribution



Normochromic normocytic anemia was the most common type found in 81.6% of the patients followed by normocytic hypochromic anemia(10%).



Increment in Hb(gm/dl)	>1-2g/dl	1-0.5g/dl	<0.5g/dl
No of patients.	38 (63.4%)	16 (26.6%)	6 (10%)

Comparative mean values of hemoglobin of patients who completed treatment with recombinant human erythropoietin

	Baseline	4 week treatment	8 week treatment	12 week treatment
Hb(gm/dl)	8.8	9.725	10.61	11.48

In present study, an increase in Hb level by 0.8gm/dl was noted in every 4 weeks following treatment with EPO ,

by the end of 12weeks of therapy an increase in hemoglobin level by 2.68gm/dl was noted.

Comparative mean values of reticulocyte count of patients who completed treatment with recombinant human erythropoietin

	Baseline	12 weeks treatment	Result
Reticulocyte count (%)	0.71+0.14	2.84+0.69	A mean increase in reticulocyte count by 2.13% was noted following 12weeks of treatment with EPO

SUMMARY AND CONCLUSION

SUMMARY

- In present study, 60 patients of chronic kidney disease those who were being treated in Sir Takhtasinghji Hospital, Bhavnagar were selected. All patients were thoroughly examined and investigated and it was observed that:
- The maximum patients were in the age group of 51-60 yrs(45%) with the mean age group of the present study group being 56yrs.
- 75% patients were male while female were 25% with male to female ratio being 3:1.
- Mean hemoglobin percentage of the present study group 8.8 gm%.
- The most common type of anemia was normochromic normocytic type (81.6%) , while normochromic normocytic type of anemia was found in 10% of patients and microcytic hypochromic type in 6% of patients.
- Following 12 weeks of treatment with erythropoietin 38(63.3%)patients had an increment in Hb level of upto 2gm/dl, 16(26.67%) patients had an increment of upto 1gm/dl while 6(10%) patients had an increment in Hb level of<0.5gm/dl. EPO therapy was found to be safe and effective in CKD patients with anemia.
- In the present study group a mean increase in reticulocyte count by 2.13% was noted following EPO therapy for 12 weeks.

CONCLUSION

- Normochromic normocytic anemia was the most common type of anemia found in patients with chronic kidney disease .
- The recombinant erythropoietin therapy was found to be safe and effective in chronic kidney disease patient and was associated with significant improvement in anemia in these patients.