Anemia in hemodialysis patients, experience from a tertiary care hospital

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ABSTRACT

Anemia in hemodialysis population is common and requires constant vigilance by treating nephrologist and the dialysis room personnel. Anemia is associated with reduced quality of life, increased risk of CVD, hospitalization, and even mortality[1].

Materials and Methods:

This was a cross sectional analysis of prevalent hemodialysis patients aged 18 – 80 years at Fatima Memorial Hospital. Anemia was defined as a hemoglobin concentration of less than 10 mg/dL.

RESULTS

Total number of participants was 36. The mean age was 48.56 + 19.15 years. There were 27 (75%) males. 53.3% patients were found to be anemic.

CONCLUSIONS

In this study, almost half of the patient population was anemic. This strongly suggests that our existing practices for management of anemia in patients with CKD may not be sufficient.

Key Words: *Anemia, Anemia in Chronic Kidney Disease, Erythrocyte Stimulating Agents, ESA.*
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INTRODUCTION

Anemia is a marker of poor prognosis in patients on maintenance hemodialysis[1-2]. The generation of anemia in Chronic Kidney Disease (CKD) is a complex interplay between reduced generation of erythropoietin, iron deficiency, iron utilization pathway abnormalities and bleeding diathesis. It has been shown that anemia causes increased morbidity and mortality, including increased risk of fractures, cardiovascular events, and mortality in outpatients, as well as in cardiac patients[3-5].

Materials and Methods:

The study was a cross sectional analysis of patients' undergoing maintenance hemodialysis at Fatima Memorial Hospital. Total 36 patients undergoing twice or thrice weekly hemodialysis were included in this study. Our standard protocol is to check hemoglobin levels monthly with subsequent adjustment of parenteral iron therapy, erythrocyte stimulating agent (ESA) dose and prescription of other hematinic agents (Vitamins and Folic Acid). Anemia was defined as a hemoglobin (Hb.) level of less than 10 mg/dL. Data regarding demographics, hemoglobin level (for the month of March 2017), ESA dose and parenteral/oral iron and hematinic therapy was collected in a specially designed preforma. ESA dose was calculated as IU/week.SPSS v.20 was used to analyze the data.

RESULTS

Demographics of the patient population is given in **Table 1**. Our patient cohort comprised of mainly middle aged, predominantly diabetic population. Most of the patients were males and undergoing twice a week regular hemodialysis. Mean hemoglobin was 9.88 + 1.15 g/dL (Range: 6.5 – 13 g/dL). Nineteen (52.8%) patients were anemic whereas two (5.8%) patients had a

Table 1: Baseline characteristics of patients with anemia.

Table 1	**General characteristics of Patients**
Total number	**36**
Mean age (years)	**48.56± 19.15**
15- 40 years.	11 (30.6%)
41- 60 years.	14 (38.9%)
More than 60 years.	11 (30.6%)
Gender	**Males 27 (75%) Females 9 (25%)**
Mean duration on dialysis (years)	3.75± 3.11
Frequency	
Twice a week.	27 (75%)
Thrice a week.	9 (25%)
CKD Cause	
Diabetic Nephropathy	23 (63.9%)
Glomerulonephritis	12 (33.3%)
Others	1 (2.8%)

hemoglobin concentration of more than 11.5 g/dL. At the time of cross section, 16 patients (44.4%) were taking parenteral iron therapy whereas 34 patients (95%) were takin oral iron and hematinics. Twenty-eight patients (77.8%) were on ESA therapy and median ESA dose was 8000 IU/Kg.

DISCUSSION

Anemia accompanying chronic kidney disease can adversely affect outcomes of these patients[1,3-4]. KDIGO 2012 guidelines for anemia management in patients on hemodialysis gives a cut-off10 g/dL for initiation of ESA therapy and suggests that target hemoglobin should not be more than 11.5 g/dL[6]. This is partially because there is considerable lack of data on the benefits of Hb. concentrations between 11.5 and 13 gm/dL whereas a Hb.level of more than 13 g/dL is associated with adverse outcomes [7-10].
Almost half of the population in our study was anemic. This is similar to other studies reported on patients with end stage renal disease and on hemodialysis[11-12].

According to one local study almost 90% of the patients were found to be anemic at the initiation of renal replacement therapy
however our study was carried out on patients receiving maintenance hemodialysis13. At the time of cross section only one patient had received blood transfusion owing to a hemoglobin level of 6.5 g/dL owing to missed ESA doses.

Most of our patients were taking oral iron therapy however parenteral iron was also being utilized in around 44.4% of the patients. In patients on hemodialysis, IV iron may be more effective than oral iron for replenishing depleted iron stores, improving Hb. levels and reducing dosage requirements for ESAs [14-15]. Eight patients (22.2%) out of the whole cohortwere not receiving ESA – two of these had a hemoglobin level of more than the target for our population (12.4 g/dL, 12.5 g/dL)whereas six patients had hemoglobin levels within the target range or below it. In our community where ESA may have to be arranged by the patients themselves, it is commonly omitted by the dialysis staff because of non-availability.

CONCLUSION

In this study, almost half of the patient population was anemic. This strongly suggests that our existing practices for management of anemia in patients with CKD may not be sufficient.

DISCLOSURE

All the authors declared no conflict of interest.

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