

Prevalence of Anemia and its Associated Factors among Chronic Kidney Disease Patients Attending Selected Public Hospitals of Addis Ababa, Ethiopia: Institutional Based Cross-sectional Study

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Abstract

Anemia is a global public health problem with high mortality and morbidity. It is becoming more prevalent in Ethiopia. Therefore, this study aimed to estimate the prevalence of anemia and its associated factors among chronic kidney disease patients at selected public hospitals of Addis Ababa, Ethiopia.

Keywords: •Chronic kidney disease •Anemia
•Prevalence •Ethiopia

Methods

An institutional-based cross-sectional study was conducted on selected public hospitals in Addis Ababa for studies on anemia in CKD patients. Data was entered into EPI Info version 4.4.1 and exported to SPSS version 24 for analysis. Both bivariate and multivariate logistic regression analyses were used to identify independently associated factors of anemia in CKD patients. Multivariate analysis was used to control the possible effect of confounders.

Chronic kidney disease (CKD) is a progressive, irreversible deterioration of renal function in which the body's ability to maintain metabolic, fluid electrolyte, and balance fail, which results in uremia or azotemia and can be classified into stages 1 to 5 based on the deterioration of glomerular filtration rate (GFR), with each increasing number indicating a more advanced stage of the disease.

Anemia is a global public health problem of all developing and developed countries which affects not only human health but also both social and economic development and occurs at all age group of the population. Anemia is defined as a state in which the quality and/or quantity of circulating red blood cells is below normal or the established cut-off point defined by the World Health Organization. According to the World Health Organization (WHO) diagnostic criteria, Patients are classified as anemic when hemoglobin (Hgb) is < 12 g/dl for females and <13g/dl for males.

Anemia with CKD is defined as a situation in which the concentration of hemoglobin in the blood is below the mean Hg level, corrected for age and sex and the main cause of anemia in CKD is the inadequate production of endogenous erythropoietin either due to functional or absolute iron

deficiencies.⁵ The prevalence of anemia was high in non-dialysis chronic kidney disease patients from stage 1 to the last stage. Certain factors that

are associated with the development of anemia in patients with CKD include; diabetic nephropathy (DN), chronic kidney disease (CKD) stages, body mass index (BMI), smoking, leukocyte count, and serum albumin. The occurrence of anemia was higher for patients with both end-stage renal disease and CKD. It has also a greater prevalence among older persons, persons with diabetes, cardiovascular disease, and hypertension than persons without these conditions.

Anemia is the commonest complication of CKD which accounts significant burden of cardiovascular diseases. CKD decreases the quality of life of patients. It suggested that CKD had a significant association with anemia and is considered as a possible cause when the glomerular filtration rate (GFR) is <60mL/min/1.37m² and, it is more likely to be the cause if the GFR is <30mL/min/1.73m². The use of iron therapies and erythropoiesis-stimulating agents (ESAs) has allowed improvement in patients with anemia of CKD.

A study done in Korea showed that, as CKD stages increase the anemia has also direct relation with the stages. Current smokers showed a lower risk of anemia compared to the previous smoker and lower body mass index (BMI) had a higher risk of anemia but there is no significant association between gender and age with anemia.⁶ Therefore, this cross-sectional study aimed to estimate the prevalence of anemia in patients with CKD and its associated factors at selected public hospitals in Addis Ababa Ethiopia.

Result

A total of 387 participants were included to estimate the prevalence of anemia among chronic kidney disease patients. The prevalence of anemia was 53.5% (95% CI). Being females were 2 times more likely to develop anemia as compared to their counterparts (AOR=2.04, 95%:1.18, 2.46) and hemodialysis history had two times higher odds for anemia (AOR=2.754, 95% CI: 1.218–6.229, P=0.015) compared to patients without hemodialysis history.

Conclusion

The overall prevalence of anemia across all stages of CKD is 53.5%. From the stage of CKD, stage 5 CKD has a higher (90.9%) anemia prevalence compared to others, and females showed a higher frequency of anemia when compared with males. Therefore, situation-based interventions and country context-specific preventive strategies should be developed to reduce the prevalence of anemia in this patient group.

Biography

BA holds MSc in Adult Health Nursing with more than 4years' experience in nursing care at St. Paul's Hospital. TT holds MSc in Oncology Nursing with more than 6 years' experience in nursing, teaching, and research. TT is currently serving as Lecturer at Saint Paul's hospital millennium medical college, oncology nursing, Addis Ababa, Ethiopia. NG and YT holds MSc in Nursing with more than 8 years of experience in nursing, teaching, and research.