

Anemia among pre end stage renal disease patients in Egypt: An epidemiological study

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Introduction & Aim: Anemia is a major complication of chronic kidney disease (CKD) and may contribute to adverse clinical outcomes. It has been recognized as an important risk factor for increasing cardiovascular disease (CVD) morbidity and mortality. Early identification and treatment may improve the consequences of anemia. This study was undertaken to determine the prevalence of anemia among pre end stage renal disease (Pre ESRD) patients and describe the relationship between anemia and glomerular filtration rate (GFR).

Methods: Hospital based survey was done among Pre ESRD adult (aged ≥ 18 years) patients. The enrolled patients were selected from those attending the out-patient Nephrology clinic, being the pool for all nephrology patients, at the Main Alexandria University Hospital (serves patients from different regions of the country). Patients with end stage renal disease, history of blood loss or transfusion, history of malignancy, and history of hemodialysis or peritoneal dialysis were excluded. Demographic and clinical data were collected by interviewing eligible patients after their informed consent. Blood pressure, weight, height, fasting blood sugar, and serum creatinine were measured. Proteinuria was detected by dipstick. Complete blood count was done. GFR was assessed by CKD-EPI equation. CKD was classified according to NKF-KDQOI guidelines. Anemia was defined as Hb level < 13.5 g/dl among males and < 12 g/dl among females.

Results: Of 500 patients (52% males, age mean \pm SD 51 ± 14 years), 67.8% were anemic, 28.8% and 71.2% were in stage 3 and 4 CKD, respectively. Proteinuria was present among 68.4%. Diabetes and hypertension were present among 48.8% and 59.4%, respectively. Male gender, body mass index, systolic blood pressure, and GFR were significantly ($p < 0.05$) associated with anemia in both univariate and multiple logistic regression analyses. GFR was the first factor in the rank order for the variables associated with anemia. The odds of anemia decrease by 8% with every 1 ml/ min/ 1.73 m^2 increase in GFR. In ROC curve analysis, GFR added 5% discrimination power for the presence of anemia compared to a simple model based on standard clinical criteria [area under the ROC curve (AUC), without GFR: AUC= 0.66, $p < 0.001$; with GFR: AUC= 0.71, $p < 0.001$].

Conclusion: Anemia is highly prevalent among pre end stage renal disease patients and prevalence of anemia is increasing as kidney function declines.

Biography

Samar Abd ElHafeez has just completed her Ph.D. at the age of 31 years from Alexandria University. She is a lecturer of Epidemiology at the High Institute of Public Health- Alexandria University. She is an expert in the field of etiological and prognostic research, also survival analysis, testing for causality and interaction.

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