Clinical Practice Pattern in Anemia Management in Hemodialysis Patients in El Minia Governorate

Thesis

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AV	Arteriovenous access
BP	Blood pressure
CKD	Chronic kideny disease
CRP	C- reactive protein
CVC	Chronic venous cathter
CVD	Cardiovascular disease
DM	Diabetus mellitus
DOPPS	Dialysis outcome and practice pattern study
ERA-EDTA	the European Renal Association-European Dialysis and Transplantation association
ESRD	End stage renal disease
GFR	Glomerular filtration rate
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HD	Hemodialysis

HDF	Hemodiafiltration
HF	Hemofiltration
HTN	Hypertension
IPD	Intermittent peritoneal dialysis
K/DOQI	Kidney Disease Outcome Quality Initiative
KDIGO	Kidney disease improving global outcomes
MOH	Ministry of health
NKF **PEM**	National Kidney Foundation Protein energy malnutrition
RRT	Renal replacement therapy
UF	Ultrafiltration

Introduction

Anemia is highly prevalent in hemodialysis(**HD**) patient with high morbidity and mortality risk. The management of renal anemia has been revolutionized over the last 15 years after ' recombinant human erythropoietin ' was introduced in 1989 , which replaced blood transfusion as the main treatment of this complication (***Cameron, 1999)***.

In recent years; specific clinical guidelines have been developed to optimize the quality of anemia management secondary to chronic kidney diseases (CKD).As a result; the National Kidney Foundation Kidney Disease Outcome Quality Initiative (K\DOQI) guidelines and the Renal-European Dialysis and Transplantation Association best practice guidelines have been published in USA & Europe . Therefore; clinical practice guidance help individual physician and physicians as group to improve their clinical performance and thus raise standard of patient care towards optimum levels, They may also help to insure that all instituation provide an equally good base line standard of care ***(*Cameron,1999**).

Guidelines practiced on anemia and actual practice are much different with different places and patients according to treatment. Moreover, in individual countries and individual units

within countries local circumstances relating to economic conditions; organization of health care delivery or even legal constraints may render the immediate implementation of best practice guidelines difficult or impossible. Nevertheless, they provide a goal against which progress can be measured (***Locatelli et al,2004).***

Dialysis OutComes and Practice Patterns Study (DOPPS) has observed a large variation in anemia management among different countries .The main hemoglobin concentration in hemodialysis patient varied widely across the studied countries ranging between 8 g/dl to 11 g/dl .The percentage of prevalent hemodialysis patient receiving Erythropoeitin stimulating agent ' ESA' has increased from 75% to 83% .The percentage of HD patient receiving iron varies greatly among DOPPS countries range from 38% to 89% (***Locatelli et al, 2004***) .

There are challenges in implanting clinical guidelines in medical practice Overall DOPPS Data which show that, despite the availability of practice guidelines for treatment of renal anemia wider variation in anemia management exists as gap between what is recommended by the guidelines and is accomplished in everyday clinical practice. Compliance with clinical guidelines is an importance indicator of quality and efficacy of patient care at the same time their adaption in clinical

practice may be initiated by numerous factors including: clinical experts, patient performance, constrains of public health policies, community standard, budgetary limitation and methods of feeding back information concerning current practice (***Cameron,1999***).

Aim of work

To study the pattern of current clinical practice in anemia management in hemodialysis patients in ELMINIA Governorate and to compare this Pattern with standard international guidelines in anemia management in K/DIGO ,2010.

Chapter 1
Causes and Consequences of anemia in HD patients

Definition of Anemia:

Anemia, as defined by the NKF, is a Hemoglobin (Hb) concentration < 12 g/dl for women and < 13.5 g/dl for Men (NKF 2006).

Conversely, the European Best Practices Guidelines for the Management of Anemia in Patients with Chronic Renal Failure defines anemia according to age and sex. Anemia is defined as an Hb concentration of < 11.5 g/dl in women, < 13.5 g/dl in men ≤ 70 years of age, and < 12 g/dl in men > 70 years of age ***(NKF 2007).*** Regardless of the definition, anemia is a common complication associated with CKD.

1- Etiology of Anemia:

The anemia of CKD is primarily due to insufficient production of erythropoietien (EPO). Although EPO can be produced in many of the body's tissues, EPO required for erythyropoiesis is generally produced by endothelial cells in proximity of the renal tubules ***(Khoury et al, 1998)***, The erythropoietin receptor is expressed primarily on the surface of