Current Status of the Implication of the Clinical Practice Pattern in Hemodialysis Prescription in Regular Hemodialysis Patients in Kafr El Sheikh Governorate Sector I

Thesis

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Contents

List of contents

Content **Page**

List of Tables

List of figures

Abbreviations

- ACEIs Angiotensin converting enzyme inhibitors
- AHR adjusted hazard ratio
- ALPs Alkaline phosphatase
- AVF arteriovenous fistula
- AVG arteriovenous graft
- BFR blood flow rate
- BMI Body mass index
- CAPD Continuous ambulatory peritoneal dialysis
- CDC Centers for Disease Control and Prevention
- CEA carcinoembryonic antigen
- CMS Centers for Medicare and Medicaid Services
- CRF chronic renal failure
- CVC Central venous catheters
- CVD cardiovascular disease
- DM Diabetes mellitus
- DOPPS Dialysis Outcomes and Practice Patterns
- ECG electrocardiogram
- e Kt/V Estimated kt/v
- ESRD End-stage renal disease
- CKD Chronic kidney disease
- GBD Global Burden of Disease
- Hb hemoglobin
- HCV hepatitis C virus
- HD hemodialysis
- HDL high-density lipoprotein
- HR Hazard ratio
- HTN Hypertension
- IV intravenous
- IWG interdialytic weight gain
- K/DIGO Kidney Disease | ImprovingGlobal Outcomes
- K/DOQI Kidney Disease Outcome Quality Initiative
- MBD mineral and bone disorder
- MHD maintenance hemodialysis

- MOH Ministry of Health
- MRI magnetic resonance imaging
- NCD Noncommunicable disease
- NCDS National Cooperative Dialysis Study
- NKF National Kidney Foundation
- NSE neuron-specific enolase
- PTH parathyroid hormone
- Pmp per million population
- QOL Quality of life
- RRT renal replacement therapy
- SCC squamous cell carcinoma
- TSAT Transferrin saturation
- TT treatment time
- VA vascular access

Abstract

Introduction: Chronic kidney disease (CKD) is a worldwide public health problem. According to the World Health Report 2002 and Global Burden of Disease (GBD) project, diseases of the kidney and urinary tract contribute to the global burden of diseases, with approximately 850,000 deaths every year and 15,010,167 disability-adjusted life years. They are the 12th cause of death and the 17th cause of disability, respectively. The global incidence and prevalence of CKD, however, may be underestimated by these data for a number of reasons.. **Aim of the work:** To study the pattern of current clinical practice in hemodialysis prescription in regular hemodialysis patients in Egypt and to compare this pattern with standard international guidelines in hemodialysis prescription (K/DIGO 2010), stressing on anemia, bone disease management and adequacy of dialysis.. **Materials and methods:** This descriptive analytic study included all available data for hemodialysis patients in Kafr El Sheikh Governorate sector (I) which include Kafr El Sheikh General Hospital, El Reyad Central Hospital, Metobas Central Hospital, El Hamol Central Hospital , Al Ahram center in Sidi Salem and El Salam hospital in El Hamol. The study sample consisted of 483 clinically stable chronic patients on regular thrice- weekly HD.. **Results:** The mean age for all patients was 52.8_+12.59 , ranging from 11-85 years, Percentage of male gender was higher than female (63.8% for male and 36.2% for female).

HTN was the commonest cause of ESRD as it was responsible for 143 cases (29.6%), DM in 116 cases (24.1%), Obstructive Uropathy in 33 cases (6.8%) , Chronic Pyelonephritis in 48 cases (9.9%) while the cause was unknown in73 cases (15.1%).. **Conclusion:** End-stage renal disease (ESRD) is one of the main health problems in Egypt. This work is a part of project aiming at Statement of the current status of dialysis patient in Egypt using a questionnaire. This project is modulated by Nephrology department, Ain Shams University..

Key words: CRF: chronic renal failure, Hb: hemoglobin, HD: Hemodialysis.

Introduction

Chronic kidney disease (CKD) is a worldwide public health problem. According to the World Health Report 2002 and Global Burden of Disease (GBD) project, diseases of the kidney and urinary tract contribute to the global burden of diseases, with approximately 850,000 deaths every year and 15,010,167 disability-adjusted life years. ***(Arrigo S and Giuseppe R , 2005).*** They are the 12th cause of death and the 17th cause of disability, respectively. The global incidence and prevalence of CKD, however, may be underestimated by these data for a number of reasons.

Studies examining the link between research evidence and clinical practice have consistently shown gaps between the evidence and current practice. Some studies in the United States suggest that 30%-40% of patients do not receive evidence-based care, while in 20% of patients care may be not needed or potentially harmful. However, relatively little information exists about how to apply evidence in clinical practice, and data on the effect of evidence-based guidelines on knowledge uptake, process of care or patient outcomes is limited ***(Locatelli C et al., 2004)***.

Appropriately then, the care of dialysis patients has been the prime focus of nephrology, particularly after the widespread availability of maintenance dialysis when it became evident that mortality of dialyzed patients was high and their quality of life far from adequate ***(Eknoyan G et al., 2002)*** .

Guidelines practiced on anemia and actual practices 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 C et al., 2004)***.

Compliance with clinical guidelines is an important indicator of quality and efficacy of patient care, at the same time their adaptation 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 JS, 1999)***.

End-stage renal disease (ESRD) is one of the main health problems in Egypt. Currently, hemodialysis represents the main mode for treatment of chronic kidney disease stage 5 (CKD5), previously called ESRD or chronic renal failure ***(Afifi A and Karim MA, 1999)***.

There are challenges in implanting clinical guidelines in medical practice. Overall Dialysis Outcomes and Practice Patterns (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 every day clinical practice. Compliance with clinical guidelines is an importance indicator of quality and efficacy of patient care at the same time their adaptation 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 JS, 1999)***.

Aim of the work

- To study the pattern of current clinical practice in hemodialysis prescription in regular hemodialysis patients in Egypt and to compare this pattern with standard international guidelines in hemodialysis prescription (K/DIGO 2010), stressing on anemia, bone disease management and adequacy of dialysis.

ESRD burden in developing countries

One potential outcome of chronic kidney disease (CKD) is end-stage renal disease (ESRD), requiring costly renal replacement therapy in the form of dialysis or transplantation. Although the incidence of ESRD shows signs of leveling off in developed countries, perhaps in part because of increased awareness of CKD, no such trend is seen in developing countries or minority populations. Over 2 million people now require renal replacement therapy to sustain life worldwide, but this likely represents less than 10% of those who need it ***(Paul K et al.,2015).***

Noncommunicable diseases (NCDs) are the most common causes of premature death and morbidity and have a major impact on health-care costs, productivity, and growth. CKD is an important public-health problem that is closely linked to other major NCDs such as diabetes and cardiovascular disease (including hypertension)—but which independently increases the likelihood of adverse outcomes and high health-care costs, suggesting that it can be used to identify the highest risk subset of patients, who may benefit most from treatment. Further, optimal management of these other NCDs may require modification when CKD is also present ***(McCullough PA et al., 2007).***

End-stage renal disease (ESRD) has significantly increased in developing countries such as Egypt. Diabetes mellitus is still the leading cause of ESRD, while numbers of hypertensive patients among that population have significantly risen.

Cardiovascular disease is also an important cause. However, in the United States about 28% of patients with clinically significant (stage 3 or

worse) CKD are neither diabetic nor hypertensive, particularly those older than 65 years **(*Vassalottiet JA al., 2010).***

The proportion of people with CKD not explained by diabetes or hypertension is substantially higher in developing countries. In developing countries, diabetes and hypertension now appear to be the leading causes of ESRD with a prevalence of about 30% and 21%, respectively, but glomerulonephritis and CKD of unknown origin account for a larger fraction of the total, especially in younger patients ***(William G et al., 2011).***

Risk factors for the development of ESRD include diabetes, hypertension, obesity, dyslipidaemia, history of smoking, anaemia and proteinuria/albuminuria. Diabetic nephropathy occurs in up to 40% of diabetic subjects with microalbuminuria and is currently the major cause of ESRD in many regions of the world ***(Gowdak LH et al., 2007).***

The prevalence of CKD in developing countries is expected to dramatically increase over the next two decades. Other less recognized factors will contribute as well. For example, there is strong evidence that intrauterine events linked to poor nutrition alter prenatal programming and lead to low nephron number, which represents another substantial risk factor for CKD in later life. This is relevant to global health given the emerging food crises worldwide. In underdeveloped countries, a combination of poor living conditions, inadequate dialysis, malnutrition, hypoalbuminemia, and frequent blood transfusion makes dialysis patients prone to a variety of bacterial, viral, and fungal infections. Infection and cardiac diseases remain the predominant causes of death in Indian dialysis patients ***(Rao M et al., 1998).***