Current status of the Implication of the Clinical practice pattern in Hemodialysis Prescription in Regular Hemodialysis Patients in Egypt (El-Gharbeya governorate) (Sector D)

Thesis

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قَالُوا سُبْحَانَكَ
لاَ عِلْمَ لَنَا
إِلاَّ مَا عَلَّمْتَنَا
إِنَّكَ أَنتَ
الْعَلِيمُ الْحَكِيمُ
صدق الله العظيم
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List of Abbreviations

AC	: Activated carbon
ACE	: Angiotensin converting enzyme
AV	: Arteriovenous
AVF	: Arteriovenous fistula
B2-M	: B2 microglobulins
BFR	: Blood flow rate
BMI	: Body mass index
BP	: Blood pressure
BP	: Blood pressure
BUN	: Blood Urea Nitrogen
C3a	: Complement 3a
C5a	: Complement 5a
Ca	: Calcium
CAPD	: Continuous ambulatory peritoneal dialysis
CAPR	: Cardiopulmonary recirculation
CKD	: Chronic kideny disease
CMS	: US Centers for Medicare and Medicaid Services
CPG	:Clinical practice guidelines
CRP	: C- reactive protein
CVC	: Central venous cathter
CVD	: Cardiovascular disease
DDS	: Dialysis disequilibrium syndrome
DFR	: Dialysate flow rate
DI	: Deionization

List of Abbreviations

DM	: Diabetus mellitus
DOPPS	: Dialysis outcome and practice pattern study
EBPG	: European Best Practice Guidelines
ECG	: Electrocardiogram
EKR	: Equivalent renal clearance
ERA-EDTA	: The European Renal Association-European Dialysis and Transplantation association
ESA	: Erythropoitin stimulating agent
ESRD	: End stage renal disease
ETO	: Ethylene oxide
GFR	: Glomerular filtration rate
GIT	: Gastrointestinal tract
GraDe	: Grades of recommendation assessment, Development and evaluation
HBV	: Hepatitis B Virus
HCV	: Hepatitis C Virus
HD	: Hemodialysis
HD	: Hemodialysis
HDF	: Hemodiafiltration
HIT	: Heparin induced thrompocytopenia
HTN	: Hypertension
IDH	: Intradialytic hypotension
K/DOQI	: Kidney Disease Outcome Quality Initiative
KOA	: The mass transfer area coefficient

List of Abbreviations

MBD	: Mineral bone disease
MOH	: Ministry of health
MRA	: Magnetic resonance angiography
Na	: Sodium
NO	: Nitric Oxide
nPCR	: Normalized protein catabolic rate
PRCA	: Pure red cell aplasia
PTA	: Percutanous transluminal angioplasty
PVC	: Polyvinyl chloride
RO	: Reverse osmosis
SRI	: Solute removal index
URR	: Urea reduction ratio
UV	: Ultraviolet

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INTRODUCTION

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 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 and Agodoa,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 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, 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, 1999).***

Although hemodialysis is often used for treatment of ESRD, no practice guidelines are available in Egypt. Healthcare facilities are seeking nowadays to develop practice guidelines for the sake of improving healthcare services ***(Ahmed et al., 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, stressing on anemia, bone disease management and adequacy of dialysis.

Chapter (1):

HEMODIALYSIS PRESCREPTION

Introduction:

End-stage renal disease (ESRD) is the stage reached by chronic renal diseases in which kidneys function is irreversibly lower than 15% of normal function. ESRD is fatal unless some kind of renal replacement is offered (dialysis or kidney transplantation). Worldwide there is a shortage of organs to transplant and new cases of ESRD are increasing rapidly, making hemodialysis (HD) the most used form of renal replacement ***(Abouna et al.,2008).***

Etiology of and Risk Factors for CKD

Major risk factors for development and progression of CKD include diabetes, hypertension, older age, and being African American. Nearly 45% of incident kidney failure is attributed to diabetes and another 20% is attributed to chronic hypertension. Other less common but important causes include primary glomerulonephritis, lupus, and polycystic kidney disease ***(U.S. Renal Data System, 2009).***

Reduced kidney function is associated with poorer psychosocial functioning, higher anxiety, higher distress, decreased sense of well-being, higher depression, and negative health perception. Evidence is emerging that cognitive impairment, delirium and depression are very common in patients with kidney disease. All of these conditions are associated with prolonged hospitalization and an increased risk of mortality ***(McQuillan and Jassal, 2010).***

Risk factors:

- **Age**

The estimated prevalence of chronic kidney disease (CKD) stages 3-5 varies by age and gender (based on extrapolation of patients with CKD amongst those tested for kidney function in primary care12). In the 18 to 25 age group the prevalence is less than 1%, this increases to more than 40% in the 85 and over age group ***(Stevens et al., 2007).***

- **Gender**

The prevalence of CKD is higher in women compared to men in most population based studies ***(Zhang and Rothenbacher, 2008).***

- **Inheritance of kidney disease**

A recent paper developing a risk predictor for chronic kidney disease estimated that having a family history of kidney disease conferred an increased risk of developing moderate to severe CKD.

A number of inherited conditions are associated with kidney disease; these include polycystic kidney disease, medullary sponge kidney, vesico-ureteric reflux and Von Hippel Lindau disease. Kidney disease is also associated with congenital syndromes e.g. Alports Syndrome and Bartters syndrome ***(The Renal Association. UK Renal Registry Report 2010).***

- **Socio-economic status**

Socially deprived people have a higher incidence and prevalence of CKD in developed countries, though the magnitude of the effect varies between countries ***(White et al., 2010).***

- **Hypertension**

Several studies have shown that hypertension is a risk factor for CKD. More recently a UK based study indicated that the risk of developing moderate to severe CKD (stages 3b, 4 and 5) increase in those being treated for hypertension. In both females and males this was about two and a half times the risk ***(Hippisley-Cox and Coupland, 2010).***

- **Diabetes mellitus**

Several studies have indicated that diabetes is associated with a significantly increased risk for CKD. More recently a UK based study indicated that diabetes increased the risk of developing moderate to severe CKD (stages 3b, 4 and 5) ***(Hippisley-Cox and Coupland, 2010).***

In women the risk was about eight times higher and in men over twelve times higher compared to those without diabetes. Diabetic nephropathy is a renal complication of diabetes mellitus. Diabetes is the most common cause of ESRD requiring renal replacement therapy in the UK ***(The Renal Association. UK Renal Registry Report, 2010).***