

**CURRENT STATUS OF THE IMPLICATION OF THE CLINICAL
PRACTICE PATTERN IN HEMODIALYSIS PRESCRIPTION IN
REGULAR HEMODIALYSIS PATIENTS IN ALKALIOBYA
GOVERNORATE (SECTORB2)**

Thesis

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in Internal Medicine

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List of Abbreviations

| | |
|----------------------|--|
| ACEI | Angiotensin Converting Enzyme Inhibitor |
| ACT | Activated clotting time |
| AKI | Acute Kidney Injury |
| AMR | Antibody-mediated Rejection |
| APKD | Adult polycystic kidney disease |
| ARA | Angiotensin Receptor Antagonist |
| AV | Arteriovenous access |
| AVF | Arteriovenous fistula |
| AVG | Arteriovenous graft |
| BFR | Blood flow rate |
| BMD | Bone Mineral Density |
| BMI | Body mass index |
| BP | Blood pressure |
| BUN | Blood Urea Nitrogen |
| CAD | Chronic allograft dysfunction |
| CAN | Chronic allograft nephropathy |
| CAPD | continuous ambulatory peritoneal dialysis |
| CaSR | Calcium Sensing Receptor |
| CCPD | Continuous cycling peritoneal dialysis |
| CCr | Creatinine Clearance |
| CERA | Continuous erythropoiesis receptor activator |
| CGN | Chronic glomerulonephritis |
| CKD | Chronic kidney disease |
| CKD-MBD | CKD- Mineral Bone Disease |
| CLD | Chronic liver disease |

List of Abbreviations (Cont....)

| | |
|-----------------------|---|
| CNI | Calcineurin Inhibitor |
| COPD | Chronic obstructive pulmonary disease |
| CPG | clinical practice guidelines |
| CPN | Chronic pyelonephritis |
| CRF | Chronic Renal Failure |
| CRP | C- reactive protein |
| CVC | Central venous catheter |
| CVD | Cardiovascular disease |
| CVS | Cerebro-vascular stroke |
| Da | Dalton |
| DCD | Dialysis associated Carnitine disorder |
| DEXA | Dual-Energy X ray Absorptiometry |
| DFR | Dialysate flow rate |
| DM | Diabetes mellitus |
| DOPPS | Dialysis outcome and practice pattern study |
| DSAs | Donor Specific Antibodies |
| EPO | Erythropoietin |
| ERA-EDTA | the European Renal Association-European Dialysis and Transplantation association |
| ESA | Erythropoietin Stimulating Agent |
| ESRD | End stage renal disease |
| FDA | Food And Drug Administration |
| FGF-23 | Fibroblast growth factor 23 |
| GFR | Glomerular filtration rate |
| GI | Gastro intestinal |

List of Abbreviations (Cont....)

| | |
|---------------------|---|
| GraDe | Grades of recommendation assessment, Development, and evaluation |
| HBV | Hepatitis B Virus |
| HCV | Hepatitis C Virus |
| HD | Hemodialysis |
| HDF | Hemodiafiltration |
| HF | Hemofiltration |
| Hgb Hb | Hemoglobin |
| HTN | Hypertension |
| IHD | Ischemic heart disease |
| IPD | Intermittent peritoneal dialysis |
| IV | Intravenous |
| K/DOQI | Kidney Disease Outcome Quality Initiative |
| KDIGO | Kidney disease improving global outcomes |
| KOA | The mass transfer area coefficient |
| MCV | Mean Corpuscular Volume |
| MOH | Ministry of health |
| NIPD | Nocturnal intermittent peritoneal dialysis |
| NKF | National Kidney Foundation |
| PTH | Parathyroid hormone |
| PVD | Peripheral vascular disease |
| QIP | Quality improvement programs |
| RAS | Renin Angiotensin System |
| RBC | Red Blood Corpuscle |
| RRT | Renal replacement therapy |

List of Abbreviations (Cont....)

| | |
|--------------------|------------------------------------|
| SHPT | Secondary Hyperparathyrodism |
| SLE | Systemic lupus erycematosis |
| TIBC | Total iron binding capacity |
| TMP | Transmembrane pressure |
| TMV | Turnover,Mineralization and Volume |
| TPD | Tidal peritoneal dialysis |
| TSAT | Transferrin Saturation |
| URR | Urea reduction ratio |
| VDR | Vitamine D Receptor |
| (Kuf) | The ultrafiltration coefficient |

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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 et al., 2002*).

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\DOQ I) 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 institution provide an equally good base line standard of care (*Cameron, 1999*).

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*).

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 8g/dl to 11g/dl. The percentage of prevalent hemodialysis patient receiving erythropoietin 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 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, 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 (*Ministry of Health and Population, 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.

AETIOLOGY OF CHRONIC KIDNEY DISEASE

CKD is the preferred term because another widely used one, chronic renal failure or insufficiency, is not as easily identifiable by patients as a disorder that affects the kidney. In addition, chronic renal failure (CRF) suggests that the kidneys have lost all of their function, whereas CKD covers the spectrum of clinical problems beginning with abnormalities detectable only by laboratory testing to a late stage, labeled uremia. When the kidney fails to perform most of its function, the clinical state is labeled end-stage renal disease ESRD, and dialysis or transplantation is required to sustain life (*Mitch, 2007*)

Chronic kidney disease (CKD) is a devastating disease with clinical, economic and ethical dimensions, and is a recognized major public health problem. CKD is defined as kidney damage or glomerular filtration rate (GFR) less than 60 ml/min/ 1.73m² for 3 months or more, regardless of cause (*Levey et al., 2005*).

The major outcomes of CKD, regardless of cause include progression to ESRD, complications of decreased kidney function, and cardiovascular disease (CVD). Increasing evidence indicates that some of these adverse outcomes can be prevented or delayed by early detection, and treatment (*Remuzzi et al., 2002*).