# معدل انتشار اعتلال القلب والاوعية الدموية لدى المرضى في بداية الاستصفاء الدموي

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توطئه للحصول على

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# Prevalence of Cardiovascular Dysfunctions in Patients Initiating Hemodialysis

*Thesis*

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# List of abbreviations

| Abb. | Full Term |
|---|---|
| cTnI | cardiac troponin I |
| cTnT | cardiac troponin T |
| CV | Cardio vascular |
| CVA | Cerebrovascular accident |
| CVD | Cardiovascular disease |
| EBCT | Electron beam computed tomography |
| EF | Ejection fraction |
| ESA | Erythropoiesis stimulating agent |
| ESRD | End stage renal disease |
| FGF-23 | Fibroblast growth factor 23 |
| GDF-15 | Growth differentiation factor 15 |
| GFR | Glomerular filtration rate |
| HBV | Hepatitis B virus |
| HCV | Hepatitis C virus |
| HD | Hemodialysis |

| | |
|---|---|
| HGB | Hemoglobin |
| HIV | Human immunodeficiency virus |
| HsCRP | High sensitivity C-reactive protein |
| HsTnI | High seneitivity troponin I |
| IL-6 | Interleukin 6 |
| IL-10 | Interleukin 10 |
| KDOQI | Kidney Disease Outcomes Quality Initiative |

*List of Abbreviations(cont…)*

| | |
|---|---|
| LA | Left atrium |
| LPS | lipopolysacharide |
| LV | Left ventricle |
| LVD | Left ventricular dilatation |
| LVDD | Left ventricular diastolic dysfunction |
| LVH | Left ventricular hypertrophy |
| LVMI | Left ventricular Mass index |
| MDRD | Modification of Diet in Renal Disease |
| mTOR | mammalian target of rapamycin |
| Msx2 | Msh hoebox 2 gene |
| NFAT | Nuclear factor of activated T cells |

| | |
|---|---|
| NHT | Normal hematocrit trial |
| NP | Nurse practitioner |
| NT-proBNP | N-terminal prohormone Brain naturitic peptide |
| Osterix | Osteobalst specific transcription factor |
| PE | Pulmonary embolism |
| PTH | Parathyroid hormone |
| PTX3 | Pentroxin 3 |
| RAAS | Renin-angiotensin-aldosterone system |
| rHuEpo | Recombinant Human Erythropoietin |
| RRT | Renal replacement therapy |
| Runx 2 | Runt related transcription factor 2 |

## *List of Abbreviations(cont…)*

| | |
|---|---|
| SCD | Sudden cardiac death |
| SR – B1 | Scavenger receptor class B1 |
| s RAGE | Soluble receptor of advanced glycation end products |
| Sox 9 | Sex determining region Y box 9 gene |
| SWMA | Segmental wall motion abnormality |
| TDI | Tissue Doppler imaging |
| TIBC | Total iron binding capacity |

| | |
|---|---|
| TLR4 | Tall like receptor 4 |
| TSAT | Transferretin saturation |
| VSMC | Vascular smooth muscle cell |

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## Results:

# INTRODUCTION

Chronic kidney disease (CKD) is a worldwide public health problem and cardiovascular mortality is estimated to be at least 10- to 100-fold higher in patients with end stage renal disease (ESRD) than in the age matched general population ***(Chan et al., 2011, Herzog et al., 2011).***

Mortality rates among hemodialysis (HD) patients exceed 20% per year and a higher mortality rate within the first year after initiation of HD has been described ***(Rognant & Laville, 2014)***. The all-cause mortality and mortality due to cardiovascular disease or other causes is found to peak in the second month after dialysis initiation ***(Bradbury et al, 2007, USRDS 2013).*** In fact, recent studies confirmed highest mortality in the first 2-6 weeks after dialysis initiation **(*Chan et al. 2011, Foley et al, 2014).***

Considerable efforts sought to highlight the factors of this early mortality and found that the clinical conditions of patients in the period before

dialysis play a role. In addition, the pattern of CKD care could be an important and modifiable factor, with late referral to a nephrologist and poor management of cardiovascular risk in CKD patients being associated with worse prognosis ***(Jungers et al, 2001, Goldstein et al, 2004, Rognant & Laville, 2014, Ishani et al, 2014).***

Patients who initiate chronic dialysis are older, have more co-morbid illness or subclinical damage such as left ventricular hypertrophy and calcifications than a decade prior, and subsequently may experience more hospitalizations in follow-up. Approximately three quarters of incident dialysis patients have increased LV mass, an independent predictor of cardiovascular events and death after onset of ESRD ***(Sood et al, 2014).***

In absence of well-organized integrated system for care of pre-dialysis patients, evaluating patients at dialysis initiation may provide an index of degree of care given for these patients and a proxy for identifying high risk patients.

# AIM OF THE STUDY

To assess cardiovascular status and clinical characteristics of patients initiating hemodialysis as an index of predialysis care and to identify significant cardiovascular risks in these patients.