بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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قسم

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MONA MAGHRABY

Hemodialysis Patients through Systemic Inflammation

Thesis

Submitted for Partial Fulfillment of Master degree in
Internal Medicine

By

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Reham Abd El-Aziz Abd El-Hamid

List of Contents

List of Tables

List of Figures

List of Figures **(Cont...)**

List of Abbreviations

Abb.	Full term
AAMI	American association of medical instrumentation
ACEI	Angiotensin converting enzyme inhibitor
ACR	Albumin creatinine ratio
AD	Atopic dermatitis
ADMA	Asymmetric dimethyl arginine
AGEP	Advanced glycation end products
AKI	Acute kidney injury
ARBS	Angotensin receptor blockers
ASV	Anodic stripping voltammetry
AUC	Area under the ROC curve
BLL	Blood lead level
CAPD	Continous ambulatory peritoneal dialysis
CKD	Chronic kidney disease
CKD ap	Chronic kidney disease associated pruritus
CPD	Chronic Peritoneal dialysis
DLQI	Dermatology life quality index
DOPPS	Dialysis outcome and practice pattern study
ESRD	End stage renal disease
EUTox	European uremic toxin
FAAS	Flame atomic absorbtion spectrometry
GFAAS	Graphite furnace atomic absorbtion spectrometry
GFR	Glomerular filtration rate
GLA	Gamma linolenic acid
Hb	Hemoglbin
HD	Hemodialysis
hsCRP	High senestivity c reactive protein
ICP-MS	Inductively coupled plasma mass spectrometry
iPTH	Intact parathyroid hormone

List of Abbreviations (Cont…)

Abb.	Full term
IS	Indoxyl sulfate
KDIGO	The international guideline group Kidney Disease Improving Global Outcomes
MDRD	Modification of diet in renal disease
MHD	Maintanance hemodialysis
Na+	Soduim
NKF	National kidney foundation
NRS	Numeric rating scale
OS	Oxidative stress
Pb	Lead
PBI-P	patient benefit index of pruritus
P-CS	P crysyl sulfate
PD	Peritoneal dialysis
QOL	Quality of life
ROC	Receiver operating characteristic curve
ROS	Reactive oxygen species
RRT	Renal Replacement Therapy
SDMA	Symmetric dimethyl arginine
TH	T-Helper
TNF	Tumour necrosis factor
UF	Ultrafiltration
UP	Uremic Pruritus
US	Ultrasound
UVB	Ultraviolet B
VAS	Visual Analogue Scale
VRS	Verbal rating scale
WRO	Water reverse osmosis

INTRODUCTION

End stage renal disease represents a clinical state or a condition in which there has been an irreversible loss of the endogenous renal function to a degree which is sufficient to render the patient permanently dependent upon Renal Replacement Therapy (RRT) which may be dialysis or kidney transplantation ***(Rajan and Santhi, 2012).***

Uremic pruritus is a common and burdensome symptom for patients with kidney failure, affecting up to 46% of hemodialysis patients. Uremic pruritus is most commonly described as a daily or near-daily occurrence of itch that spans large bilaterally symmetrical surface areas. It does not exhibit a dermatomal pattern and there is no associated primary skin lesion. Uremic pruritus can vary from a generalized itch to a localized itch affecting the back, face, and arms ***(Simonsen et al., 2017).***

The association between uremia and pruritus was first reported more than a century ago. Patients with severe chronic renal failure may be predisposed to the development of xerosis, hyperpigmentation, uremic roseola, calcinosis cutis, acquired perforating dermatosis, bullous dermatosis of hemodialysis, half and half nails and pruritus ***(Aramwit and Supasyndh, 2015).***

Uremic pruritus can compromise the psychosocial and emotional wellbeing as well as the overall health-related quality of life of the patients. Interestingly, emerging evidence from observational studies reported that dialysis patients with extreme pruritus were more likely to have a high mortality rate and suffer from sleep disturbances, depressive symptoms or chronic subclinical inflammation ***(Nochaiwong et al., 2017).***

Data for therapy specifically for uremic pruritus remains limited, although topical therapies, gabapentin, type B ultraviolet light phototherapy, acupuncture, and opioid-receptor modulators all may play a role ***(Combs et al., 2015).***

Unfortunately, the pathogenesis of uremic pruritus remains poorly understood. Proposed hypotheses include systemic inflammation, imbalance between the expression of opioid receptors, and other risk factors. Blood lead level has been reportedly associated with inflammation and nutritional status in long-term haemodialysis patients and might contribute to 1-year mortality in these patients. All-cause, cardiovascular, and infection-related 18-month mortality in patients on maintenance haemodialysis were positively associated with high blood lead level. Taking these findings into consideration, there might be an interaction or association between blood lead level and uremic pruritus through systemic inflammation ***(Weng et al., 2017).***

Exposure to lead, potentially, may come from many different environmental sources, including industrial pollution, lead containing paints, contaminated water from old lead pipes, traditional medicines, cosmetics, hair dyes, and inhalation of fumes from burning lead batteries ***(Davenport et al., 2009).***

Lead is a metal without biological function.The body cannot use it but can be absorbed and stored. Lead has an accumulative effect and its poisoning can be made even in a little amount..it was shown that the blood lead level is higher in endstage renal disease Patients who were on maintenance haemodialysis than in the healthy adults,the blood lead level was found to increase with the duration of maintenance haemodialysis ***(Palaneeswari et al., 2012).***

Trace elements physiology is highly complicated because their secretion ways are binding with protein and tissue concentrations. It is clear that Trace elements status in end stage renal disease patients is different from healthy people and this issue makes the requirement of careful studies on clinical impact of trace elements in blood and end stage renal disease patient's tissues vivid ***(Makhlough et al., 2014).***