Prevalence of Pruritus Among Patients with Chronic Kidney Disease, Hemodialysis Patients and Posttransplantation

Thesis

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List of Abbreviations

Abbrev.	
ALT	Alanine aminotransferase
APD	Acquired perforating dermatitis
AQP3	Aquaporin-3
AST	Aspartate aminotransferase
AZA	Azathioprine
b2MG	β2-micro-globulin
BB-UVB	Broadband ultraviolet B
BCC	Basal cell carcinoma
BUN	Blood urea nitrogen
Ca	Calcium
Ca*pho4	Calcium phosphorus product
CAPD	Continuous ambulatory peritoneal dialysis
CBC	Complete blood count
CKD	Chronic kidney disease
CRP	C-reactive protein
CsA	Cyclosporine A
CXC	Chemokine
CXCR3	Chemokine receptor 3
CYP	Cytochrome P
DM	Diabetes mellitus
DOPPS	Dialysis Outcomes and Practice Patterns Study
ELISA	Enzyme linked immunesorbent assay
ESRD	End stage renal disease
FIR	Far-infrared rays

List of Abbreviations (Cont.)

Abbrev.

GBP .....Gabapentin

GLA .....Gammalinolenic acid

Hb.....Hemoglobin

Hct .....Hematocrit

HCV.....Hepatitis C virus

HD .....Hemodialysis

HLA .....Human Leukocyte Antigens

HPV .....Human papilloma virus

hsCRP.....Highly selective C-reactive protein

IL.....Interleukin

iPTH .....Intact parathyroid hormone

ITSCC.....International Transplant Skin Cancer Collaborative

IV.....Intravenous

MCC.....Merkel cell carcinoma

MED.....Minimal erythema dose

MMF .....Mycophenolate mofetil

MW .....Molecular weight

NB-UVB.....Narrowband ultraviolet B

NIUN.....National Institute of Urology and Nephrology

P .....Phosphate

PCT.....Porphyria cutanea tarda

PD.....Peritoneal dialysis

PGB .....Pregabalin

PMMA.....Polymethylmethacrylate

List of Abbreviations (Cont.)

Abbrev.	
PTH	Parathyroid hormone
PUVA	Psoralen Ultraviolet A
RTRs	Renal transplant recipients
SC	Subcutaneous
SCC	Squamous cell carcinoma
SLE	Systemic lupus erthromatosis
SSRIs	Selective serotonin reuptake inhibitors
TAC	Tacrolimus
TNF	Tumor necrosis factor
TSAT	Transferritin saturation
UK	Untied Kingdom
UP	Uremic pruritus
URR	Urea reduction ratio
USRDS	United state renal data system
UV	Ultraviolet
UVA	Ultraviolet A
UVB	Ultraviolet B
UVB	Ultraviolet B
5-HT	5-hydroxy-tryptamine
8-MOP	8-methoxypsoralen
95% CI	95% confidence interval

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INTRODUCTION

The prevalence and incidence of chronic kidney disease (CKD) has increased drastically during the past several decades worldwide, making it a major public health issue..." In 2003, there were more than 320,000 people with end-stage renal disease in the United States, and the prevalence is predicted to increase to 650,000 by 2010 and 2 million by 2030 ***(Robinson, 2006).***

Pruritus, often overlooked by nephrologists, primary care physicians, and health care professionals, is one of the most common and distressing cutaneous symptoms of CKD. CKD-associated pruritus frequently is a disabling and distressing symptom that has a significant impact on the mental and physical capacity of patients, contributing to daytime fatigue, agitation, and depression, also profoundly impacts on sleep ***(Hamer and El-Nahas, 2006).***

The prevalence of CKD-associated pruritus varies substantially, ranging from 22% to 90%. In the early 1970s, Young et al. reported that 85% of dialysis patients were affected by CKD itch. In the largest and most recent epidemiological study to date (2006), the prevalence of CKD-associated pruritus was 42% ***(Dyachenko et al., 2006).***

We observed no correlation between pruritus intensity and type of dialysis membrane. In addition, CKD-associated pruritus was reported to completely resolve after renal transplantation,

although in our experience, some patients continue to experience pruritus posttransplantation ***(Duque et al., 2006).***

In 2000, Yosipovitch et al. developed a questionnaire for the evaluation and measurement of pruritus, based on the McGill Pain Questionnaire. This questionnaire subsequently was tested in 145 hemodialysis patients with CKD-associated pruritus. It proved to be reliable and provided valid data for the sensory, affective, and overall intensity of CKD-associated pruritus ***(Yosipovitch et al., 2001).***

This questionnaire, along with other similar questionnaires, subsequently was used in studies that attempted to characterize clinical features of this distressing symptom. The development and use of a standardized questionnaire undoubtedly will provide a better understanding of CKD-associated pruritus, possibly facilitating discovery of a pathophysiological mechanism and allowing valid comparisons of different treatment options ***(Zucker et al., 2003).***

AIM OF THE STUDY

The purpose of this work is to study the Prevalence of pruritus among patients with chronic kidney disease, hemodialysis patients and post-transplantation.

DERMATOLOGIC MANIFESTATIONS OF RENAL DISEASE

Introduction

Cutaneous examination of patients with ESRD has shown that 50-100% of patients have at least one dermatologic condition. A high prevalence of cutaneous disorders is expected, since most patients with ESRD have an underlying disease process with cutaneous manifestations. In addition, uremia and conditions associated with renal replacement therapy are fraught with numerous and, often, relatively unique cutaneous disorders ***(Reichrath and Nurnberg, 2008)*.**

Dermatologic manifestations of renal disease may be divided into 3 general categories including:

(1) Dermatologic manifestations of diseases associated with the development of ESRD.

(2) Dermatologic manifestations of uremia.

(3) Dermatologic disorders associated with renal transplantation.

(Reichrath and Nurnberg, 2008)

Table (1): Dermatologic Manifestations of Diseases Associated with the Development of ESRD ***(Goldsmith and Black, 2001).***

Systemic Disorder	Renal Disorder	Dermatologic Manifestations
Diabetes mellitus	Diabetic nephropathy	Diabetic dermopathy Necrobiosis lipoidica Acanthosis nigricans Eruptive xanthomas Kyrle disease Scleredema
SLE	Glomerulonephritis Nephrotic syndrome	Purpura Chronic cutaneous lupus Subacute cutaneous lupus Photosensitivity Mucosal ulcers Vasculitis
Henoch-Schönlein purpura	Glomerulonephritis Vasculitis	Purpura
Wegener granulomatosis	Glomerulonephritis Vasculitis	Purpura Subcutaneous nodules Ulcers
Polyarteritis nodosa	Glomerulonephritis Vasculitis	Purpura Subcutaneous nodules Ulcers
Subacute bacterial endocarditis	Renal emboli Glomerulonephritis	Petechiae Purpura
Cholesterol emboli	Renal emboli	Petechiae Livedo reticularis Blue toes
HCV	Glomerulonephritis	Purpura Porphyria cutanea tarda Lichen planus Sclerodermatous plaques Cutaneous polyarteritis nodosa Necrolytic acral erythema
HIV	HIV-associated nephropathy	Eosinophilic folliculitis Oral hairy leukoplakia Bacillary angiomatosis Kaposi sarcoma
Systemic sclerosis	Malignant hypertension	Diffuse scleroderma
Amyloidosis	Nephrotic syndrome	Purpura Macroglossia
Fabry disease	Nephrotic syndrome	Angiokeratomas
Nail-patella syndrome	Renal tubular defects	Absent/displaced patella Absent/pitted nails
Tuberous sclerosis	Renal hamartomas Renal cell carcinoma	Adenoma sebaceum Ash-leaf macule Periungual fibromas Shagreen patch