



Do Patients With End-Stage Chronic Renal Failure Treated With the Use of Hemodialysis Have Healthy Skin? Evaluation of Skin Lesions and Basic Education About Risk Factors for Skin Cancer in This Patient Population

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ABSTRACT

Background. Considering the increasing incidence of skin cancers in patients after renal transplantation, evaluation of skin condition in dialysis patients, from whom kidney transplant recipients are recruited, appears to be very important. Particular importance is attached to the identification of such dialysis patients in the population who require dermatologic care before qualifying for transplantation. The objective of this study was to determine the prevalence of skin diseases in the dialysis patient population. Education of the patients regarding risk factors for skin cancer and the need for sun protection was performed.

Methods. Full dermatologic examination, including dermatoscopy, was performed on a group of 77 dialysis patients (38 women, 39 men) and a control group of 77 healthy people (60 women, 17 men).

Results. Eight hemodialysis patients had healthy skin compared with 33 people from the control group. In the remaining hemodialysis patients, the following skin lesions were observed: 1) inflammatory and allergic skin disorders in 17 patients; 2) bacterial, fungal, and viral infections in 26 patients; 3) benign lesions in 39 patients; 4) malignant skin lesions and precancerous conditions in 4 patients; and 5) other skin changes in 63 patients.

Conclusions. Skin lesions are common in the dialysis patient population. Only 10% of the examined population had completely healthy skin, compared with 43% of the control group. More than one-half of dialysis patients required dermatologic care compared with one-third of healthy control subjects.

THE INCREASED incidence of patients with chronic kidney disease in the world population is an important economic and social problem [1–3]. Patients with advanced renal failure require renal replacement therapy: hemodialysis, peritoneal dialysis or kidney transplantation. In recent years there has been an increase in the number of dialysis patients by a few percent (4%–9%) [4].

The most common causes of end-stage renal failure are diabetic nephropathy, chronic glomerulonephritis, hypertensive nephropathy, and polycystic kidney disease.

In patients with chronic renal disease, both in the stage of predialysis and during dialysis, many manifestations of skin diseases are observed. According to Khanna et al, who

studied 2 groups of patients, up to 96% of patients reported ≥ 1 skin problem, and skin lesions of an infectious etiology were observed in 29% of patients [5]. According to a study by Sułowicz, in the dialysis population fungal infection, with a prevalence of 8.9%, was the most common, although in the population of renal transplant patients, the prevalence was 25.9%. It was the most commonly reported infection in patients on dialysis and second most common in patients undergoing immunosuppression [4].

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METHODS

Seventy-seven patients treated with hemodialysis because of chronic kidney disease (38 women and 39 men) underwent full skin examination, including dermatoscopy. The study did not include peritoneal dialysis patients. All patients gave informed consent to participate in the study. The control group comprised 77 healthy volunteers (60 women and 17 men). The healthy people were also dermatologically and dermatoscopically tested.

During the visit, the patients and the control group were interviewed about their illness, duration and cause of dialysis, chronic diseases, medication, and skin diseases. All patients were interviewed about the risk factors of skin cancer and sun protection. Patients also had their phototype of skin assessed on the basis of the Fitzpatrick classification:

Type I: skin always burns, never tans (Celtic type)

Type II: skin burns readily, tans with difficulty (northern European type)

Type III: skin rarely burns, always tans (central European type)

Table 1. Prevalence of Skin Diseases in Hemodialysis Patients and Healthy People, *n* (%)

Skin Condition	Hemodialysis Patients (<i>n</i> = 77)	Healthy People (<i>n</i> = 77)
Inflammatory and allergic skin disorders	17 (22.0%)	12 (15.6%)*
Seborrheic dermatitis	5 (6.5%)	3 (3.9%)
Psoriasis	4 (5.2%)	1 (1.3%)
Prurigo nodularis	3 (3.9%)	0
Eczema	3 (3.9%)	4 (5.2%)
Rosacea	2 (2.6%)	1 (1.3%)
Acne	1 (1.3%)	2 (2.6%)
Other	4 (5.2%)	1 (1.3%)
Infections	26 (33.8%)	5 (6.5%)*
Bacterial	19 (24.7%)	0
Fungal	6 (7.8%)	2 (2.6%)
Viral	5 (6.5%)	3 (3.9%)
Benign skin lesions	39 (50.60%)	50 (65%)
Melanocytic naevi	19 (24.7%)	19 (24.7%)
Cellular naevi	12 (15.6%)	13 (16.9%)
Vascular naevi	2 (2.6%)	6 (7.8%)
Seborrheic keratoses	7 (9.1%)	5 (6.5%)
Fibroids	7 (9.1%)	12 (15.6%)
Other	9 (11.7%)	2 (2.6%)
Malignant skin lesions and precancerous conditions	4 (5.2%)	0*
Actinic keratosis	4 (5.2%)	0
Basal-cell carcinoma	2 (2.6%)	0
Other skin changes		
Dryness	47 (61.0%)	1 (1.3%)*
Pruritus	20 (26.0%)	0*
Ecchymosis	10 (13.0%)	0
Telangiectasia	16 (20.8%)	0
Leg ulcers	4 (5.2%)	0
Nail changes	9 (11.7%)	1 (1.3%)
Hair changes	5 (6.5%)	2 (2.6%)
Stretch marks	7 (9.1%)	0
Age spots	11 (14.3%)	7 (9.1%)
Vitiligo	2 (2.6%)	0
Other	29 (37.6%)	6 (7.8%)

**P* < .05 between hemodialysis patients and healthy people.

Type IV: skin does not burn, always tans (southern European type)

Type V: skin never burns, tans strongly (Asian, Arab type)

Type VI: permanent brown pigmentation (African type) [4].

Skin changes diagnosed in patients were described in detail as far as the type, size, their location are concerned. Most lesions were evaluated on the basis of clinical picture, and patients with skin lesions suggestive of cancer were directed to the outpatient surgery and otolaryngology for excision and histopathologic verification. Patients who required acute dermatologic care were prescribed drugs, and patients with chronic diseases of the skin were referred to the clinic of dermatology.

Differences between groups were evaluated by means of Student *t* test for independent samples with normal distribution.

RESULTS

Patients on hemodialysis suffered from a series of dermatologic skin lesions (Table 1). In 17 patients (22%), inflammatory diseases such as psoriasis (Fig 1), seborrheic dermatitis, rosacea, acne, and prurigo nodularis were observed. These patients had been treated for the diseases earlier or a diagnosis was made after dermatologic examination in the present study.

Twenty-six subjects suffered from infectious diseases of skin (33.8% of all patients), including 19 patients with bacterial infections, 6 patients with fungal infections (Fig 2), and 5 with viral infections. In 5% of patients the infectious skin diseases coexisted.

In 50.6% of patients, mild lesions and melanocytic, vascular, and cellular nevi were observed; 5.2% of patients had malignant skin lesions (Fig 3) and precancerous conditions (actinic keratosis and basal-cell carcinoma).

A total of 82% of patients suffered from other lesions, such as dryness and itchiness of skin (61% and 26%, respectively), ecchymosis, hyperpigmentation, leg ulcers (Fig 4), and nail changes.

A total of 43 people (56%), including 23 women and 20 men, required further dermatologic treatment and control at the dermatology clinic. Only 10% of patients had healthy skin.



Fig 1. Psoriasis.

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