International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Impact of Uraemic Xerosis and Pruritus on Quality of Life Among Maintenance Hemodialysis Patients

Jayabharathy.M

Assistant professor, Faculty of Allied Health Science, Dr. M.G.R Educational and Research Institute.

Abstract

Background: ESRD (end-stage renal disease) is a substantial public health problem, and people endure a vast variety of its symptoms. Uraemic xerosis and pruritus are symptoms in CKD (chronic kidney disease) patients, significantly impairing quality of life. Furthermore, it is an independent risk factor for poorer survival rates. The aim of this study was to evaluate the impact of uraemic xerosis and pruritus on patients' quality of life.

Materials and methods:

Over the course of six months, 100 hemodialysis patients were chosen for a descriptive, cross-sectional study that was carried out in the hemodialysis unit of ACS Medical College and Hospital. Patients who had prurigo, superficial infections, contact dermatitis, AKI patients, or who were not receiving dialysis for chronic kidney disease were excluded from the study, and the patients were asked to provide informed consent. The EL Gammal severity score, VAS (100mm visual analogue scale), DLQI (Dermatology life quality index), and SF-12 (12-item short form survey) were used to evaluate the intensity of xerosis, pruritus, and quality of life, respectively.

Results:

Using the generic SF-12 questionnaire, it was shown that hemodialysis patients with end-stage renal disease had a markedly altered quality of life, with reductions observed on both the physical (mean ±SD PCS: 30.60 ± 6.959) and mental (mean ±SD MCS: 28.72 +10.197) components. In our investigation, we found a weak but statistically significant association (p=0.073) between DLQI and the intensity of xerosis and a substantial correlation (p=0.000) between DLQI and pruritus. According to an analysis of demographic characteristics on DLQI and lesional status. Elderly patients also experience a severe deterioration in their quality of life (0.000*).

Conclusion:

It was determined that maintenance hemodialysis patients' quality of life is negatively impacted by uraemic xerosis and pruritus. Older age was also an aggravating factor for the deterioration of the quality of life.

Keywords: Uraemic xerosis, Uraemic pruritus, Quality of life, Maintenance hemodialysis, End stage renal disease.

Introduction:

End-stage renal disease (ESRD), which mandates dialysis, is a burgeoning public health problem with an ever-increasing prevalence throughout the world. According to reports, 200 million people have chronic kidney disease (CKD), and many of these individuals go on to develop end-stage renal disease (ESRD) [1-3]. Many attempts have been undertaken recently to increase the survival rate of end-stage renal disease patients receiving hemodialysis. Even though hemodialysis has increased survival rates, multiple studies have raised alarming concerns about a potential decline in quality of life (QoL) as a result of end-stage renal disease (ESRD)[4-5]. The majority of ESRD patients receiving dialysis describe uremic xerosis and pruritus as the most common cutaneous manifestations; while not life-threatening, these conditions have a significant impact on a patient's quality of life and prognosis. Dry skin (xerosis) is the most common dermatological problem in chronic renal failure, appearing in 60-90% of patients undergoing maintenance haemodialysis [6-8]. The pathophysiological mechanisms underlying the development of dry skin in chronic renal failure are still unclear, but the hydration status of the stratum corneum clearly influences skin appearance, and the lack of water in horny layer is considered to induce skin roughness [9]. Pruritus affects 50–90% of patients undergoing peritoneal dialysis or hemodialysis; symptoms typically start about six months after the start of dialysis and range from localised and mild to generalised and severe. Uremic pruritus (UP) is one of the frequent complications in patients with terminal renal disease and is not present in acute renal failure[10]. Around 90% of dialysis patients have reported itching, sometimes localized or generalized. Because the etiology of pruritus is complex, the pathophysiological mechanism behind it is still unknown. Research and experimentation have yielded numerous pharmacological and non-pharmacological therapies, but none, with the exception of kidney transplantation, have proven successful in alleviating itch related to chronic kidney disease. There is a strong need for an evidence-based intervention for CKD-associated pruritus, especially for those not opting for transplants or waiting for surgery [11-13]. Unequivocally, uraemic xerosis causes severe discomfort in certain individuals. More significantly, though, it may cause or worsen pruritus symptoms, because uraemic pruritus produces severe discomfort, anxiety, depression, and sleeping difficulties, it can significantly impact the quality of life among patients undergoing maintenance hemodialysis. Hence this study was conducted to evaluate the impact of uraemic xerosis and pruritus on patient’s quality of life.

Methods

Over the course of six months, 100 hemodialysis patients were chosen for a descriptive, cross-sectional study that was carried out in the ACS Medical College and Hospital's hemodialysis unit. Following ethical approval from the institutional ethical committee of A.C.S. Medical College and Hospital, the study got underway. Basic demographic specifics were gathered, including age, gender, occupation and educational status. Other dialysis parameters that were observed included blood pressure, dry weight, duration of dialysis (period) and frequency of dialysis. Patients who had prurigo, superficial infections, contact dermatitis, AKI patents, or who were not receiving dialysis for chronic kidney disease were excluded from the study. The El-Gammal severity [14] score was used to determine the degree of xerosis on the chest, forearm without an arteriovenous shunt, and both lower legs. There are five items in the El Gammal index: 0 has smooth skin, 1 has small, powdery scale patches, 2 has a diffuse ashy appearance with many fine scales, 3 has moderate scaling with some cracks, and 4 has intense scaling with moderate cracks. The Visual Analog Scale (VAS) was used in this study to measure pruritus.

The patients used two separate instruments to assess their quality of life: the Dermatology Life Quality Index (DLQI) and the Short-Form 12 (SF-12). The SF-12 is a general index that offers multiple health status metrics. It was created as a condensed, but legitimate, substitute for the SF-36 for use in sizable surveys of both general and targeted populations [15]. There are twelve items in total, measuring eight concepts that are frequently included in surveys that are widely used: two for physical functioning, two for role-physical, one for bodily pain, one for general health, one for energy/fatigue, one for social functioning, two for role-emotional, and two for mental health. The Physical Component Summary (PCS-12) and the Mental Component Summary (MCS-12) are the two components that can be used to analyse it.

The DLQI is used to evaluate how dermatological conditions affect a patient's quality of life [16]. It is simple to understand and manageable for the patients. It consists of 10 items comprising 6 concepts: 2 items each for symptoms and feelings, 2 items for daily activities, 2 items for leisure, 1 item each for work and school, 2 things for personal connections, and 1 item for treatment. It is determined by adding up each item's score, which is rated from 0 to 3. The result is a minimum of 0 and a maximum of 30. The more QoL is compromised, the higher the score. Although it is the most often used tool for assessing quality of life in dermatology, its sensitivity to identify subtle deficits may be limited [17]. Using SPSS version 20, the independent T test was used to analyse the data that were gathered during the dialysis day.

Results

All 100 patients who were invited to participate in the study successfully completed the SF-12 and DLQI questionnaires. Table 1 lists the basic demographic information for the study population (n = 100). Whereas the MCS and PCS component of SF-12 were severely altered (mean ± SD MCS: 28.72 ± 10.197), (mean ± SD PCS: 30.60 ± 6.959) respectively. The DLQI distribution among the study population (n = 100) was as follows, in accordance with the individual score classification suggested by Hongbo et al. [18]: From the study population, 12% of the patients had an index of less than two, 4% patients had an index between two and five, 43% patients had an index of between two and ten, and 41% patients had an index of more than ten. Table II presents the DLQI results based on demographic data and dialysis-related parameters. Only age was shown to substantially affect the DLQI among the demographic variables, meaning that older patients had more severe scores (p = 0.000). There was no discernible effect on DLQI from the following factors: gender, dialysis frequency, vascular access, blood pressure, BMI, or duration of MRD (Table II). It was evident that pruritus was linked to a more severe DLQI (p = 0.0001; Table II). Likewise, it was shown that the clinical severity of xerosis was a marginally significant prognostic factor of DLQI worsening (p=0.073; Table II).

VARIABLES		PERCENTAGE (%)
AGE	18-30 YEARS	1
	30-50 YEARS	31
	50-80 YEARS	68
GENDER	MALE	70

	FEMALE	30
BLOOD PRESSURE	100/70-140/90mmHg	18
	140/90-180/90mmHg	61
	>180/90mmHg	21
BASIC KIDNEY DISEASE	HTN	100
	DM with HTN	49
	OTHERS with HTN	7
FREQUENCY OF DIALYSIS	WEEKLY ONCE	3
	TWICE WEEKLY	65
	THRICE WEEKLY	32
ACCESS	AVF(R)	9
	AVF(L)	75
	AVG	2
	PERMCATH	14
DURATION OF HD	<1 YEAR	30
	1-2 YEARS	37
	2-4 YEARS	22
	≥5 YEARS	11
BMI	16.0-18.5	4
	18.5-25	42
	25-40	54

Table 1: Demographic details of the study population. MHD: maintenance hemodialysis; BMI: body mass index

The p value is displayed in the results table 2. P values deemed significant were those < 0.05.

STATISTICAL – p VALUE	
VARIABLES	**DLQI**
AGE	0.000*
SEX	0.580
DURATION OF MHD	0.983
FREQUENCY OF DIALYSIS	0.595
VASCULAR ACCESS	0.842
BLOOD PRESSURE	0.928
BMI	0.939
PRURITUS	0.000*
XEROSIS	0.073

Table 2: Statistical analysis with independent t test between DLQI based on demographic data and dialysis-related parameters. MHD: maintenance hemodialysis; BMI: body mass index.

Discussion

Patients on hemodialysis frequently have uraemic xerosis. According to the literature, it affects 50–85%

of hemodialysis patients [19 – 21], whereas 30–40% of ESRD (end stage renal disease) patients report this symptom before starting hemodialysis [19, 22]. Moreover, following renal transplantation, the majority of patients with uraemic xerosis report a remission of the xerotic symptoms. In most patients, skin problems are still underdiagnosed and neglected. Therefore, it adversely affects the patient's chances of survival. Thus, the goal of this study is to increase understanding of the proper identification and treatment of these problems in order to potentially improve the quality of life for patients receiving continuous hemodialysis. Patients were questioned at a typical HD session after giving their informed consent, and they were asked to fill out two questionnaires, the Dermatology Life Quality Index (DLQI) and the SF-12 form. Data about the dialysis and patient demographics were also gathered. There were 30 women and 70 men among the 100 HD patients. A total of one hundred HD patients had hypertension as their primary cause of renal failure; other prominent reasons included diabetes mellitus, drug-induced renal failure, and other diseases. Validated cross-cultural QoL questionnaires were utilized in this study (SF-12, DLQI). Using the SF-12 and DLQI items, respectively, overall health-status-related QoL impairment and skin-related QoL impairment were analysed in the study population, which had both uraemic xerosis and ESRD. ESRD patients undergoing MHD were shown to have a significant change in their quality of life (QoL), with a decline on both the physical (mean ±SD PCS: 30.60 ±6.959) and mental (mean ±SD MCS: 28.72 ± 10.197) components. This was discovered using the generic SF-12 questionnaire. In our investigation, we found a weak but statistically significant association (p=0.073) between DLQI and the intensity of xerosis and a substantial correlation (p=0.000) between DLQI and pruritus. Elderly patients' QOL is significantly reduced, according to an analysis of demographic characteristics on the DLQI (0.000*). Their QoL was not affected by their gender, personal history (ESRD causative condition, duration of MHD, frequency of dialysis, vascular access, blood pressure and BMI), or any of these factors.

Conclusion

In conclusion, our findings unequivocally show that ESRD patients receiving MHD suffer a marked decline in their quality of life. The psychosocial impact of uraemic xerosis and uraemic pruritus, which contribute to the decline in their quality of life, seems to be significantly underestimated in clinical practice. In order to reduce soap-induced irritation, patients should be advised to refrain from frequent hand washing and bathing. Additionally, smoother clothing should be substituted for irritative clothing frequently, and appropriate emollient therapy should be administered to improve the quality of life for patients receiving maintenance hemodialysis (MHD).

Conflicts of Interest

There is no conflict of interest.

Acknowledgements

The study would not have been possible without the cooperation and participation of the patients, for which the authors are grateful. We also acknowledge the valuable guidance, encouragement, and suggestions provided by the project supervisor and guide.

References:

1. Anderson S, Halter JB, Hazzard WR, et al.: Prediction, progression, and outcomes of chronic kidney

disease in older adults. J Am Soc Nephrol. 2009, 20:1199-1209. 10.1681/ASN.2008080860
2. Ojo A: Addressing the global burden of chronic kidney disease through clinical and translational research . Trans Am Clin Climatol Assoc. 2014, 125:229-243.
3. Senanayake S, Gunawardena N, Palihawadana P, Bandara P, Haniffa R, Karunarathna R, Kumara P: Symptom burden in chronic kidney disease; a population based cross sectional study BMC Nephrol. 2017, 18:228. 10.1186/s12882-017-0638-y
4. Dąbrowska-Bender M, Dykowska G, Żuk W, Milewska M, Staniszewska A: The impact on quality of life of dialysis patients with renal insufficiency. Patient Prefer Adherence. 2018, 12:577-583. 10.2147/PPA.S156356
5. Valderrabano F, Jofre R, Lopez-Gomez JM: Quality of life in end-stage renal disease patients . Am J Kidney Dis. 2001, 38:443-464. 10.1053/ajkd.2001.26824
6. Bencini PL, Montagnino G, Citterio A, Granziani G, Crosti C, Ponticelli C. Cutaneous abnormalities in uraemic patients. Nephron 1985; 40: 316-321
7. Parfrey PS, Vavasour HM, Henry S, Bullock M, Gault MH. Clinical features and severity of nonspecific symptoms in dialysis patients. Nephron 1988; 50: 121-128
8. Ponticelli C, Bencini PL. Uremic pruritus: A review. Nephron 1992; 60: 1-5
9.Stahle-Backdahl M. Uremic pruritus: clinical and experimental studies. Ada Derm Venereol(Stockh) 1989; 145 [Suppl]: 1-38
9. I. Narita, S. Iguchi, K. Omori, and F. Gejyo, "Uremic pruritus in chronic hemodialysis patients," Journal of Nephrology, vol. 21, no. 2, pp. 161–165, 2008.
10. Kfoury LW, Jurdi MA: Uremic pruritus. J Nephrol. 2012, 25:644-52.
11. Chodorowska G, Wysokiński A, Chodorowski J: Uremic pruritus in the chronic renal failure patients . Ann Univ Mariae Curie Sklodowska Med. 2004, 59:174-9.
12. Suseł J, Batycka-Baran A, Reich A, Szepietowski JC: Uraemic pruritus markedly affects the quality of life and depressive symptoms in haemodialysis patients with end-stage renal disease. Acta Derm Venereol. 2014, 94:276-81. 10.2340/00015555-1749
13. El Gammal C, Pagnoni A, Kligman AM, El Gammal S. A model to assess the efficacy of moisturizers – the quantification of soap-induced xerosis by image analysis of adhesive-coated discs (D-squames®). Clin Exp Dermatol 1996; 21: 338–343.
14. Both H, Essink-Bot ML, Busschbach J, Nijsten T. Critical review of generic and dermatology-specific health-related quality of life instruments. J Invest Dermatol 2007; 127: 2726–2739.
15. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI) – a simple practical measure for routine clinical use. Clin Exp Dermatol 1994; 19: 210–216.
16. Zucker I, Yosipovitch G, David M, Gafter U, Boner G. Prevalence and characterization of uremic pruritus in patients undergoing hemodialysis: uremic pruritus is still a major problem for patients with end-stage renal disease. J Am Acad Dermatol 2003; 49: 842–846.
17. Hongbo Y, Thomas CL, Harrison MA, Salek MS, Finlay AY. Translating the science of quality of life into practice: What do dermatology life quality index scores mean? J Invest Dermatol 2005; 125: 659–664.
18. Balaskas EV, Chu M, Uldall RP, Gupta A, Oreopoulos DG. Pruritus in continuous ambulatory peritoneal dialysis and haemodialysis patients. Perit Dial Int 1992; 13: S527– S532.
19. Szepietowski JC, Sikora M, Kusztal M, Salomon J, Magott M, Szepietowski T. Uremic pruritus: a clinical study of maintenance hemodialysis patients. J Dermatol 2002; 29: 621–627.

20. Young AW Jr, Sweeney EW, David DS, Cheigh J, Hochgelerent EL, Sakai S, et al. Dermatologic evaluation of pruritus in patients on hemodialysis. NY State J Med 1973; 73: 2670–2674.
21. Nielsen T, Hemmeloff-Andersen KE, Kristiansen J. Pruritus and xerosis in patients with chronic renal failure. Dan Med Bull 1980; 27: 269–271.