International Journal of Advances in Medicine
Singh K et al. Int J Adv Med. 2017 Aug;4(4):989-992
http://www.ijmedicine.com
pISSN 2349-3925 | eISSN 2349-3933
DOI: http://dx.doi.org/10.18203/2349-3933.ijam20173217

Original Research Article

Incidence of cutaneous manifestation in patients with end stage renal disease

Khileshwar Singh[1]*, Amit Thakur[2], Kamlesh Dhruv[3]

[1]Department of General Medicine, Late Baliram Kashyap Memorial Government Medical College, Jagdalpur, Chhattisgarh, India
[2]Department of General Medicine, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh, India
[3]Department of General Surgery, Late Baliram Kashyap Memorial Government Medical College, Jagdalpur, Chhattisgarh, India

Received: 25 March 2017
Accepted: 17 April 2017

***Correspondence:**
Dr. Khileshwar Singh,
E-mail: drkhileshwarsingh@gmail.com

ABSTRACT

Background: Kidney failure as well as renal diseases is the most important health problems affecting the middle and old age population all over the world. They were supposed to be fatal till recently. The objective of this study was to study incidence of cutaneous manifestation in patients with end stage renal disease.
Methods: A hospital based cross sectional study was carried out from July 2012 to June 2013 in the Department of General Medicine, Late Baliram Kashyap Memorial Government Medical College, Jagdalpur, Chhattisgarh, India. It was possible to study a total of 50 cases of cutaneous manifestations that are already known cases of end stage renal disease. All patients with skin lesion were evaluated by history, clinical examination (systemic and dermatological), biopsy and other relevant investigations procedure for skin disease during the course of current renal disease and their stay in the hospital.
Results: The incidence of cutaneous manifestations among patients with acute renal failure was zero. It was 86% among patients with chronic renal failure. The most common manifestation was pruritus in 14% of cases followed by oral candidiasis in 4% of cases. Next common was scabies in 6% of cases and this was followed by herpes zoster and Tinea cruris in 4% of cases each. Folliculitis was seen in only one case. It was seen that all types of cutaneous manifestations were present only in patients with chronic renal failure, whereas patients of acute renal failure did not show any sort of cutaneous manifestations.
Conclusions: Chronic renal failure was observed as the important cause of cutaneous manifestations seen in patients with end stage renal disease. No cases were seen in patients with acute renal failure. Thus, it is important that patients with acute renal failure take proper precautions to avoid cutaneous manifestations up to the extent possible.

Keywords: Chronic renal failure, Cutaneous manifestations, End stage renal disease

INTRODUCTION

Nitrogen is excreted in the urine. Out of this total nitrogen 80% is composed of urea. After urea, guanidine compounds are common. They are end products of protein metabolism. These nitrogenous compounds include dimethyl guanidine creatinine, guanadinosuccinic acid and methyl guanidine. Apart from urea, the other metabolic products are urates and end products of nucleic acid metabolism. In patients with chronic renal failure, there are alterations in the composition of intracellular and extracellular fluids. These alterations are believed to be responsible for defective ion transport that takes place across cell membranes.[1]

Kidney failure as well as renal diseases is the most important health problems affecting the middle and old age population all over the world. They were supposed to be fatal till recently. But with advances in medical sciences like availability of renal transplant, many lives have been saved. But at the same time there has been an increase in the number of patients with end stage renal disease. This end stage renal disease is associated with cutaneous manifestations. It is estimated that almost half of these patients with end stage renal disease show one or the other cutaneous manifestations. This is due to underlying disease process involved in patients with end stage renal disease which leads to cutaneous manifestations.[2]

These cutaneous manifestations occurring in patients with end stage renal disease can be divided into three categories like cutaneous manifestations associated with end stage renal disease, cutaneous manifestations associated with uremia and cutaneous manifestations associated with kidney transplantation.[3]

Wegener's granulomatosis is one the important cause leading to chronic renal failure. It contributes to 35% of cases of chronic renal failure. Cutaneous manifestations are seen in 14.77% of cases of Wegener's granulomatosis patients. It is also associated with renal involvement.[4] Purpura in the lower limbs, ulcers and subcutaneous nodules are some of the cutaneous manifestations that are found. Usually skin biopsy findings are nonspecific. But granulomatous inflammation and leukocytoclastic vascullitis are the two-main specific histologic findings that are usually seen.[5]

The various cutaneous manifestations commonly reported in patients with end stage renal disease are skin color changes like pallor, shallow yellowish cast, hyper pigmentation, elastosis, ecchymoses, xerosis, poor skin turgor, acquired ichthyosis, uremic frost, half and half nails, pruritus, perforating disorders, metastatic calcifications like benign nodular calcification, calciphylaxis, bullous dermatosis like porphyria cutanea tarda and pseudoporphyria.[6]

METHODS

The present study was a hospital based cross sectional study from July 2012 to June 2013 in Department of General Medicine, Late Baliram Kashyap Memorial Government Medical College, Jagdalpur, Chhattisgarh, India. It was possible to study a total of 50 cases of cutaneous manifestations that are already known cases of end stage renal disease

Inclusion criteria

- Known cases of end stage renal disease having cutaneous manifestations
- Patients undergoing hemodialysis or continuous ambulatory peritoneal dialysis
- Patients willing to be part of the present study.

Exclusion criteria

- Patients who are not willing to be part of the present study
- Patients with end stage renal disease but not having cutaneous manifestations
- Patients who are not able to talk and not able to cooperate.

Institutional Ethics Committee permission was taken prior to the study. Informed consent was taken from each and every patient.

In the present study, all patients with skin lesion were evaluated by history, clinical examination (systemic and dermatological), biopsy and other relevant investigations procedure for skin disease during the course of current renal disease and their stay in the hospital.

Diagnosis of current renal disease like acute renal failure and/or chronic renal failure was confirmed by past medical history of any systemic illness, detailed personal, family and treatment history of the patients was also recorded along with a dermatological history. A thorough general, systemic and dermatological examination was performed. Various investigations like hemoglobin, total leukocyte count, differential leukocyte count, erythrocyte sedimentation rate, platelet count, urine routine/microscopic, blood urea, serum creatinine, blood sugar, serum protein, USG abdomen, fundus examination, chest X ray, ECG and any other relevant investigations were carried out.

Statistical analysis

The data was recorded in the pre-designed, pre tested, semi structured questionnaire. The data was then entered in the Microsoft Excel worksheet. It was analyzed using proportions.

RESULTS

A hospital based cross sectional study was carried out from July 2012 to June 2013 in the Department of General Medicine, Late Baliram Kashyap Memorial Government Medical College, Jagdalpur, Chhattisgarh, India. It was possible to study a total of 50 cases of cutaneous manifestations that are already known cases of end stage renal disease. All patients with skin lesion were evaluated by history, clinical examination (systemic and dermatological), biopsy and other relevant investigations procedure for skin disease during the course of current renal disease and their stay in the hospital.

Table 1 shows incidence of cutaneous manifestations in acute renal failure (ARF) and chronic renal failure (CRF) patients. The incidence of cutaneous manifestations

among patients with acute renal failure was zero. It was 86% among patients with chronic renal failure.

Table 1: Incidence of cutaneous manifestations in acute renal failure (ARF) and chronic renal failure (CRF) patients.

Type of renal failure	Number of cases	Incidence percentage of cutaneous manifestations
ARF	07	00
CRF	43	100
Total	50	86

Table 2 shows incidence of individual cutaneous manifestations among patients with chronic renal failure. The most common manifestation was pruritus in 14% of cases followed by oral candidiasis in 4% of cases. Next common was scabies in 6% of cases and this was followed by herpes zoster and Tinea cruris in 4% of cases each. Folliculitis was seen in only one case.

Table 2: Incidence of individual cutaneous manifestations among patients with chronic renal failure (N = 43).

Cutaneous manifestations in patients with CRF	Number	Percentage
Tinea versicolor	07	14
Oral candidiasis	04	08
Scabies	03	06
Herpes zoster	02	04
Tinea cruris	02	04
Folliculitis	01	02

Table 3: Distribution of various cutaneous manifestations in CRF and ARF.

Cutaneous manifestations	CRF	ARF
Pruritus	+	-
Xerosis	+	-
Tinea versicolor	+	-
Oral candidiasis	+	-
Scabies	+	-
Herpes zoster	+	-
Tinea cruris	+	-
Nail chanes	+	-
Hyper pigmentation	+	-
Folliculitis	+	-
Lupus erythmatous	+	-
Exfoliative dermatitis	+	-
Kyrles disease	+	-
Vitiligo	+	-
Melasma	+	-
Lichen planus	+	-
Keloid	+	-

Table 3 shows distribution of various cutaneous manifestations in Chronic renal failure and Acute renal failure patients. It was seen that all types of cutaneous manifestations were present only in patients with chronic renal failure, whereas patients of acute renal failure did not show any sort of cutaneous manifestations.

DISCUSSION

The incidence of cutaneous manifestations among patients with acute renal failure was zero. It was 86% among patients with chronic renal failure. The most common manifestation was pruritus in 14% of cases followed by oral candidiasis in 4% of cases. Next common was scabies in 6% of cases and this was followed by herpes zoster and Tinea cruris in 4% of cases each. Folliculitis was seen in only one case. It was seen that all types of cutaneous manifestations were present only in patients with chronic renal failure, whereas patients of acute renal failure did not show any sort of cutaneous manifestations.

Bencini PL et al, conducted study on 94 uremic patients. Among them, 68 patients were on regular hemodialysis and 26 were on chronic ambulatory peritoneal dialysis.[2] The author followed them for 20 months. The follow up was aimed at identifying the incidence of cutaneous manifestations. They observed that 21% of patients who were on chronic ambulatory peritoneal dialysis and 79% of patients who were on hemodialysis were having some type of cutaneous manifestations or pigmentation disorder. They also noted that pre-cancerous and cancerous manifestations among four patients who were on hemodialysis.

Murphy M et al, studied about renal itch among patients with chronic renal failure.[7] They divided it as localized and generalized. These patients were not having any primary skin disease, nor were they having any systemic or physiological dysfunction. They found that the increasing age among chronic renal failure patients was associated with increased prevalence of renal itch. They also noted that deteriorating renal function was also related directly with the increased prevalence of renal itch. Duration of dialysis was not found to improve the condition of renal itch. They could not trace out the exact etiology of renal itch in these patients. They also stated that it was difficult to treat the renal itch. Patients experienced some relief after use of naltrexone oral activated charcoal, ondasetron and ultraviolet B phototherapy. They concluded that use of topical capsaicin may be beneficial.

Gilchrest BA et al, carried-out study among 27 patients. They studied the association between chronic renal failure and its effect on cutaneous manifestations.[8] The cutaneous manifestations were studied by authors by sending samples for histology and the patients with normal looking skin were included in the study. They found that incidence of pruritus was 48% and that of xerosis was 60%. This was directly proportional to the severity of the renal failure. In all specimens, histological

examination showed thickening of basement membrane, endothelial cell activation. 75% of the uremic specimen showed the microangiopathy. Microangiopathy was more common in patients who underwent renal transplant than patients on hemodialysis. Renal transplant improved the status of patients with microangiopathy from severe to moderate two months after the renal transplant.

Casanova JM et al, have specifically studied only four patients.[9] All these four patients were on regular hemodialysis. And they were known cases of chronic renal failure. They found that they had persistent or transient, kerotic and papular rashes on arms and trunk. Focal acantholysis with dyskeratosis was seen on histologic examination. The lesions resembled with Grover's disease. The authors postulated the possible association between chronic renal failure and Grover's disease.

Glynne P et al, stated in their study that bullous dermatoses were associated with end stage renal disease. They observed that the etiology of porphyria cutanea tarda was multifactorial.[10]

Janigan DT et al, found that patients with chronic renal failure are at increased risk of pathological classification. This is due to increased serum calcium phosphorous. They noticed the body distribution of skin lesions in patients with chronic renal failure. This may be peripheral or central.[11]

CONCLUSION

Chronic renal failure was observed as the important cause of cutaneous manifestations seen in patients with end stage renal disease. No cases were seen in patients with acute renal failure. Thus, it is important that patients with acute renal failure take proper precautions to avoid cutaneous manifestations up to the extent possible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Hakim RM, Tazarns MJ. Biochemical parameters in chronic renal failure. Am J Kidney Dis. 1998;11(3):238-47.
2. Bencini PL, Montagnino G, Citterio A, Graziani G, Crosti C, Ponticelli C. Cutaneous abnormalities in uremic patients. Nephron. 1985;40(3):316-21.
3. Pico MR, Lugo-Somolinos A, Sanchez JL, Burgos-Calderón R. Cutaneous alteration in patients with chronic renal failure. Int J Dermatol. 1992;31:860-3.
4. Francès C, Piette JC, Saada V, Boisnic S, Wechsler B, Blétry O, et al. Wegener's granulomatosis: dermatological manifestations in 75 cases with clinicopathologic correlation. Archives Dermatol. 1994;130(7):861-7.
5. Walsh JS, Gross DJ. Wegener's granulomatosis involving the skin. Cutis. 1999;64(3):183-6.
6. Robinson-Bostom L, DiGiovanna JJ. Cutaneous manifestations of end stage renal disease. J Am Academy Dermatol. 2000;43(6):975-86.
7. Murphy M, Carmichael AJ. Renal itch. Clin Exp Dermatol. 2000;25(2):103-6.
8. Gilchrest BA, Rowe JW, Mihm MC Jr. Clinical and histological skin changes in chronic renal failure: evidence for a dialysis-resistant, transplant-responsive microangiopathy. Lancet. 1980;2(8207):1271-5.
9. Casanova JM, Pujol RM, Taberner R, Egido R, Fernández E, Alomar A. Grover's disease in patients with chronic renal failure receiving hemodialysis: Clinicopathologic review of 4 cases. J Am Academy Dermatol. 1999;41(6):1029-33
10. Glynne P, Deacon A, Goldsmith D, Pusey C, Clutterbuck E. Bullous dermatoses in end-stage renal failure: porphyria or pseudoporphyria?. Am J Kidney Dis. 1999;34(1):155-60.
11. Janigan DT, Hirsch DJ, Klassen GA, MacDonald AS. Calcified subcutaneous arterioles with infarcts of the subcutis and skin ("calciphylaxis") in chronic renal failure. Am J Kidney diseases. 2000;35(4):588-97.

Cite this article as: Singh K, Thakur A, Dhruv K. Incidence of cutaneous manifestation in patients with end stage renal disease. Int J Adv Med 2017;4:989-92.