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Study of Peripheral Neuropathy in Chronic Kidney Disease Stage V Patients on Hemodialysis

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Abstract

Introduction: *End stage renal disease (ESRD) is commonly associated with peripheral neuropathy. This study was undertaken to observe prevalence, type and pattern of peripheral neuropathy in end stage renal disease patients being treated by haemodialysis*

Material and Method: *50 patients of ESRD being treated by haemodialysis for duration more than 3 months were included in study. Diabetics were excluded. All patients were investigated with nerve conduction studies (NCV). Estimated glomerular filtration rate and modified total neuropathy score was calculated in each patient*

Observations: *34 % patients had normal NCV report and 66% had abnormal report, out of which 26% patients had overt and 40% had subclinical neuropathy .maximum patients had axonal sensorimotor neuropathy involving all 4 limbs.*

Conclusion: *Present study finds out high prevalence of peripheral neuropathy in ESRD patients being treated haemodialysis. Majority of patients have overt or subclinical peripheral neuropathy which can be axonal demyelinating or both. Hence through this study we emphasis on calculation of modified total neuropathy score and nerve conduction study in every patient planned for maintaince haemodialysis.*

INTRODUCTION

Prevalence of Chronic Kidney Disease is 15% and causes neurological complications in majority of patients, amongst many manifestations uremia, most common is uremic peripheral neuropathy which is predominantly sensory, distal, symmetrical predominantly affecting lower limbs. There were many studies in this topic but all included diabetes patients.

This study was undertaken to ascertain prevalence and characteristics of peripheral and neuropathy in non diabetic end stage renal disease patients undergoing maintenance hemodylasis.

AIMS AND OBJECTIVES

To assess the prevalence, types and pattern of Peripheral Neuropathy in patients with chronic kidney disease stage V on hemodialysis with nerve conduction studies.

MATERIALS AND METHODS

Study was observational and cross sectional done in Gandhi Medical College, Bhopal and Hamidia Hospital from March, 2015 to July, 2016 consisting of 50 patients of ESRD on maintenance hemodylasis.

INCLUSION CRITERIA

- Age between 20 -70 yrs irrespective of gender
- Established chronic kidney disease
- GFR <60ml/m^2 for duration of
- >3months
- Marker of kidney damage (1or more)
- albuminuria (AER >30mg/24 hr) (ACR >30 mg/g)
- Urine sediment abnormalities
- Structural abnormalities on ultrasound

EXCLUSION CRITERIA

- Diabetes
- Severely ill patients
- Patients with limb deformities which preclude proper ncv studies
- Patients with pre established neuronal disease other than kidney damage
- Uremic encephalopathy

METHOD OF DATA COLLECTION

Patient admitted for routine maintenance haemodialysis were included in study

Detailed history was obtained including duration of disease, duration of dialysis, frequency of dialysis, history of diabetes, drugs, past, personal and family history.

Parameters like height, weight, and body mass index were calculated

Total Neuropathy score was calculated in every patient. Other investigations like CBP, ESR, RFT, LFT, ELECROLYTES, ULTRASOUND ABDOMEN, FBS, PPBS, were done in all patients.

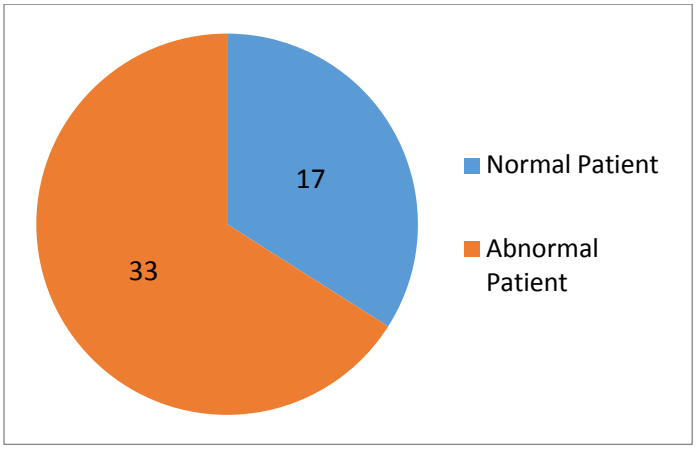
Fundus, HBa1C, VITAMIN B12 anu were done in selected patients

Estimated GFR was calculated using –

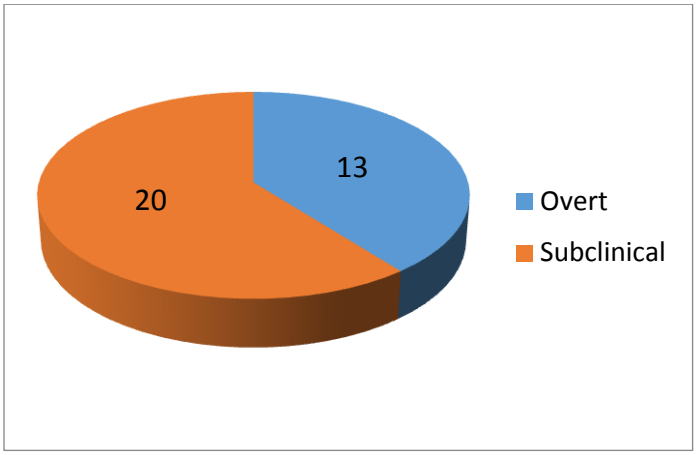
The Cockroft - Gault Equation eGFR = [(140-Age) x wt] / (72 x Cr), multiply by 0.85 if female.

Patients were taken to electrophysiology lab department of medicine for nerve conduction studies. Nerve conduction study was done using RMS EMG MAK 2

RESULTS

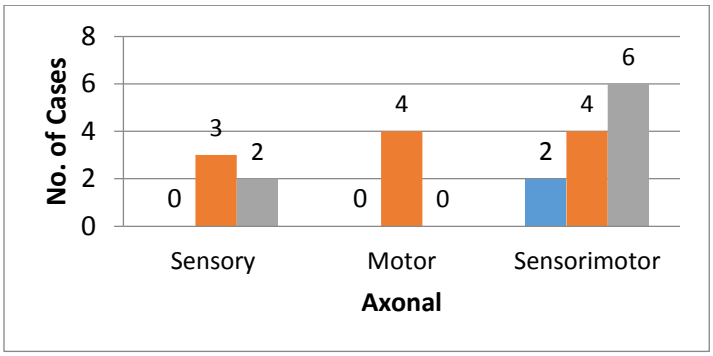


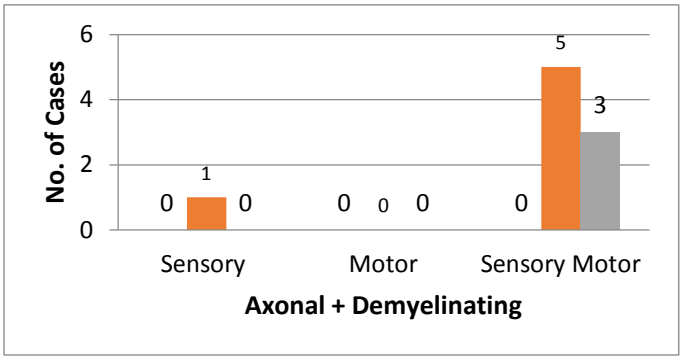
The table showing distribution of normal and abnormal NCS reports in patients of CKD being treated by maintenance hemodialysis

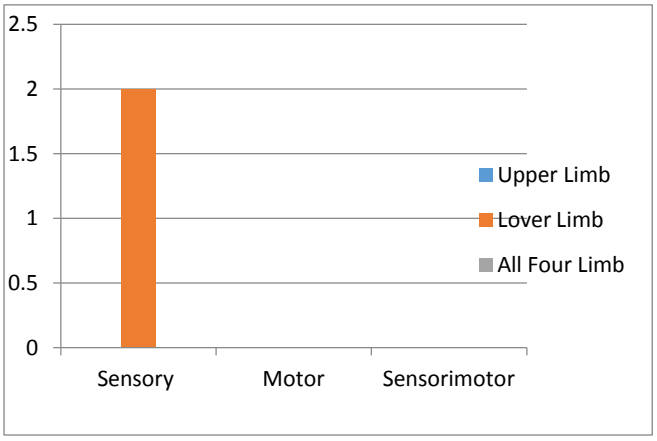


Neuropathy in CKD on hemodialysis patient

DISTRIBUTION OF PERIPHERAL NEURO-PATHY IN CKD PATIENTS







DISCUSSION

The most common etiology of ESRD were undetermined (44%) glumerophitis (26%), obstruct uropathy (16%) hypertensive nephro-pathy (10%), polycystec kidney disease (4%).

Male preponderance was noted with male/female ratio of (1.7:1)

21 to 40 years age grop was most common age group involved.

Majority of patients were on hemodylasis since last three years.

Predominant type of neuropathy was axonal, sensory motor affecting lower limb suggestive of symmetrical, distal length dependent neuropathy.

Serum Potassium, urea, creatinine could co-relate with severity and prevalence of peripheral neuropathy.

CONCLUSION

Present study finds out high prevalence of overt and subclinical peripheral neuropathy in ESRD patients on hemodylasis. Early diagnosis is therefore imperative and adequate hemodylasis and halt the progression of neuropathy.

We emphasis on NCV in every patient of CKD planned for maintenance hemodylasis.

Estimated GFR can be used as indicator of screening for peripheral neuropathy. MTNS can be used as screening tool for diagnosis and grading of peripheral neuropathy.

REFERENCES

1. Krishnan AV, Kiernan MC. Neurological complications of chronic kidney disease. Nature reviews Neurology. 2009;5 (10): 542–51. Peripheral neuropathy in patients in haemodialysis treatment 23
2. Nielsen VK. The peripheral nerve function in chronic renal failure. Acta Medica Scandinavica. 1971;190(1-6):105–11 [Abstract].
3. Van den Neucker K, Vanderstraeten G, Vanholder AR. Peripheral motor and sensory nerve conduction studies in haemodialysis patients. A study of 54 patients. Electromyography and Clinical Neurophysiology. 1998;38(8):467–74. Peripheral neuropathy in patients in haemodialysis treatment 24
4. Bazzi C, Pagani C, Sorgato G, Albonico G, Fellin G, D'Amico G. Uremic polyneuropathy: a clinical and electrophysiological study in 135 short- and long-term hemodialyzed patients. Clinical Nephrology. 1991;35(4):176–81 [Abstract].
5. Levey AS, Coresh J, Balk E, et al. National Kidney Foundation practice guidelines for chronic kidney disease: evaluation, classification, and stratification. Ann Intern Med 2003; 139:137.