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OPHTHALMIC MORBIDITIES AMONG CKD PATIENTS IN TERTIARY CARE HOSPITAL OF WEST INDIA.

Medicine

Dr. Mehul Kaliya* Assistant Professor, Medicine Dept., Shree M. P. Shah GMC, Jamnagar. *Corresponding Author

Dr. Mittal Rathod Post MD Tutor, Community Medicine Dept., Shree M.P.Shah GMC, Jamnagar & PhD Scholar, Gujarat University

ABSTRACT

The study of ocular findings in CRF patients undergoing hemodialysis can reduce the ocular morbidity. Present study was conducted among 50 patients of CRF undergoing hemodialysis for 1 year duration in GGH tertiary care hospital of Jamnagar with the objective of identifying ocular morbidities and to seek advice and management for identified cases. Among all patients, mean age was 51 years & almost equal ratio of male & female patients. Most common underlying cause was diabetes & HT. 46% had some form of ophthalmic morbidities, 14% had advanced stage of Hypertensive retinopathy. Early identification of non communicable cardiovascular diseases prevents CRF. Timely identification of CRF and its prompt management prevent complications. Regular ophthalmic screenings of CRF patients help much in quality of life of CRF parents.

KEYWORDS

Ophthalmic morbidities, CRF, Hemodialysis

INTRODUCTION:

Kidneys are one of the most vital organs of human body. Kidneys bear a huge responsibility in the survival of human body. They keep our internal environment in balance and play an essential role in the maintenance of normal homeostasis. (1) It therefore comes as no surprise that CHRONIC KIDNEY DISEASE (CKD) (replacing the earlier term – chronic renal failure) and the resultant decline in kidney function can seriously affect essentially every organ system. As kidney function deteriorates loss of excretory, regulatory and endocrine function take place and complication develops in every organ. (2)Chronic kidney disease is an emerging health problem worldwide. The eye shares striking structural, developmental, and genetic pathways with the kidney, suggesting that kidney disease and ocular disease may be closely linked. (3)Ocular manifestations such as retinal micro vascular parameters have been shown to be predictive of CKD development, and patients with CKD may be at higher risk for AMD, DR, glaucoma, and cataract. CKD may also manifest in the eye as associated developmental abnormalities of oculorenal syndromes[4] The study of ocular findings in CRF patients undergoing hemodialysis can reduce the ocular morbidity[5]Although ocular signs are not disease specific (signs seen in hypertensive patient are also seen in Diabetic patient), early recognization of these signs can help to prevent the unnecessary vision threading blindness[6]Among many ocular changes associated with systemic diseases, this article focuses on the retinal findings associated with the common diseases diabetes mellitus and hypertension[7]Ocular condition is also an indicator of the metabolic control of the disease process[8] Many times an unknown case of chronic renal failure, with its ocular complications, may first present to an ophthalmologist. This study is an attempt to access the ocular status/complications associated with CRF and also to highlight the importance of ocular examination, to screen patients for any potential visual threat so that necessary treatment and/or advice can be given at the proper time before irreversible visually loss can occur.

AIM & OBJECTIVE:

The present study aimed to assess ophthalmic morbidities among CKD patients with objectives of identifying the examination of eye in all CKD patients for prevention and management of ocular problems.

MATERIALS & METHODS:

In the present study, 50 patients of CKD admitted at GG Hospital, a tertiary care hospital, Jamnagar during period of 1 year, were included. It was a hospital based cross sectional, descriptive study among CKD patients going for hemodialysis. Patients were selected irrespective of age, sex, etiology, management or outcome with purposive sampling technique. Written informed consent form was given to the patient and if patient permitted then only recruited in study. Data were collected using a pretested Performa meeting the objectives of the study. Ocular examination was carried by ophthalmoscope. Exclusion criteria were Age</=18year, Pregnant female, HIV positive, ARF, Normal USG KUB findings. Term used CKD is defined as the presence of either kidney damage or Glomerular filtration rate (GFR) <60 ml/min/1.73 m^2. Ethical clearance was taken from Institutional ethical committee. Microsoft excel and SPSS 20.0 were used for data entry and analysis.

RESULTS:

Table: 1 Socio-demographic profile of the study population.

Characteristics	Frequency (Percentage, %)
Age groups (in years)	
≤20 years	5 (10%)
21-40 years	9 (18%)
41-60 years	20 (40%)
61-80 years	14 (28%)
≥81 years	2 (4%)
Gender	
Male	24 (48%)
Female	26 (52%)
Education Status	
Illiterate	37 (74%)
Primary	05 (10%)
Secondary	06 (12%)
Graduate	02 (4%)
Occupational	
Farmer	6 (12%)
Housewife	26 (52%)
Labourer	08 (16%)
Service	02 (4%)
Others	08 (16%)
Socioeconomic class	
Upper	0 (0%)
Middle	11 (22%)
Lower	39 (78%)

In present study of CKD patients maximum patients belonged to age group 41-60 years, i.e. 40% patients, followed by 61-80 years age group, i.e.28% with mean age of 51.74 years. Almost same distribution among male& female patients. Majority of participants were illiterate i.e. 74%. All women participants were housewife, where as of 48 % men, 16% were laborers, 12% were farmers, 4% were doing service in public or private sectors. None of the participants belonged to upper class. 78% participants belonged to lower class & rest of them from middle class.

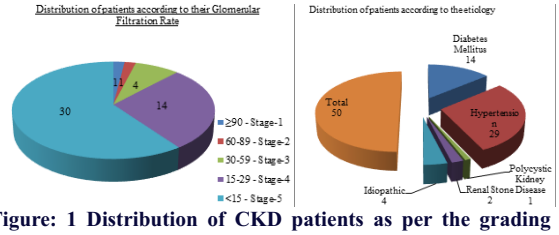

Figure: 1 Distribution of CKD patients as per the grading & Etiology:

Thus, the most common cause of chronic kidney disease in this study was hypertension, in 58% (29) patients, followed by diabetes mellitus in 28% (14), idiopathic in 8% (4), renal stone in 4% (2), & polycystic kidneys in 2% (1) patients. Here it shows distribution of participants based on their Glomerular filtration rate. Almost i.e. 60% (30) patients had GFR <15, 28% (14) patients had GFR between 15-29, 8% (4) patients had GFR between 30-59, 2% (1) patient had GFR between 60-89, 2% (1) patient had GFR ≥90.

Table: 2 Distribution of patients according to their Fundus Examination

Finding	Stage of Renal Disease			Total	
	Early	Late	Terminal	Frequency	Percentage (%)
Normal	01	06	20	27	54
Grade-I HTR	01	02	05	08	16
Grade-II HTR	0	03	0	03	06
Grade-III HTR	0	03	02	05	10
Grade-IV HTR	0	01	01	02	04
Diabetic Retinopathy	0	04	02	06	12

On Fundus examination, 27 (54%) had normal finding. 18 (36%) patients had hypertensive retinopathy. Of which, 8 (16%) patients had Grade-I hypertensive retinopathy, of which 1, 2, 5 patients were in early, late & terminal stage of renal disease, respectively. Of which, 3 (6%) patients had Grade-II hypertensive retinopathy, of which 3 patients were in late stage of renal disease. Of which, 5 (10%) patients had Grade-III hypertensive retinopathy, of which 3, 2, patients were in late & terminal stage of renal disease, respectively. Of which, 2 (4%) patients had Grade-IV hypertensive retinopathy, of which 1, 1 patients were in late & terminal stage of renal disease, respectively. 12% (6) patients had diabetic retinopathy, of which 4 patients were in late stage of chronic renal disease & 2 patients were in terminal stage of chronic renal disease.

DISCUSSION:

Of total 50 patients, 24 were males, of which mean age of male patient was 46.83years, youngest age was 19 years & eldest age was 80 years. Of 26 females, mean age was 56.26 years, youngest age was 18 years & eldest age was 85 years. CKD is a slowly progressive deterioration of renal function which can occur at any age group. In a study by Mithun Thulasidas et al., male: female ratio in CKD was 1.3:1[9] which was similar to the worldwide data and different studies [10]. Deterioration of kidney function occurs at a faster rate in males with some forms of glomerulonephritis and polycystic kidney disease[10,11, and 12]. Mean age of 144 patients is 55.9 years with a standard deviation of 7.5 which is in consistent with the study done by Dr. Manjula MS, et al. (10). In our study, the major causes of CKD were found to be HTN (53.4%), combined HTN and diabetes (19.4%) and diabetes (15.9%) followed by glomerulonephritis in 6% [10] other causes including renal calculus were seen only in 5%. This is not in accordance with the study done by Dr. Manjula MS et al. where the commonest course of CKD was diabetes (32%) followed by patients with diabetes and hypertension (29%) [10].

In a study by Mithun Thulasidas et al. The commonest cause of CKD was hypertension (HTN), 77 out of 144 patients (53.4%), followed by combined HTN and diabetes in 28 patients (19.4%), diabetes in 23 patients (15.9%) glomerulonephritis (6.3%) and other causes including renal calculi (4.9%) whereas in present study most common causes were Diabetes & HT.[9]

Three hundred patients were included from the Nephrology unit of COMS. The no of cases in each grade of CRF were mild 80 (26.67%), moderate 84 (28%), severe 75 (25%), ESRD 61 (20.33%) cases. While the male female ratio was 2.5:1 and the mean age was 45.2+-13.8 years. The commonest cause of CRF was HTN 123 (41%) and diabetes 98(32.6%) out of 300 cases. Seventy eight percent of the patients gave the history of CRF within one or less than one year. Most important ocular symptoms in CRF were blurring of vision 68%, most of it was gradual 44% in nature. Other symptoms were foreign body sensation 31%, red eye 13.2%. Most of them did not have previous eye checkup, as there was no mark diminution of vision was 51.2%. Only 31% of cases had detailed eye check up including Fundus evaluation in the past.[13]

Present study showed 32% patients have Hypertensive retinopathy while study by Vrabec R et al. Hypertensive vascular changes were seen in 44 (68%) patients and in 6 (7%) patients age-related macular degeneration. Seven patients had diabetes mellitus and in 5 diabetic retinopathy were observed. Patients with CRF or who are receiving HD represent unique group of patients. Pathologic change could be found in many tissue and organs, therefore we suggest ocular examination more frequently in dialysis patients. [14]

CONCLUSION:

We aim to spotlight the growing incidence of CRF among the population. The growing incidence of this problem is a major health hazard in our country which we can ill afford. Chronic renal failure is more common between fourth and sixth decade. The majority (81%) was having CRF as a result of Diabetes and Hypertension, which when detected and managed at early stages can halt the progress to chronic kidney disease and renal replacement therapy & delay the complications of other systems including Eye. Ophthalmic morbidities were present among 46% patients; early detection in early stage could help in quality life of patient by reducing incapacitating condition and managing at early stage.

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