

Original article:

Study of incidence of cardiac involvement in end stage renal disease

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Abstract:

Introduction : End stage renal disease (ESRD) is the irreversible deterioration of renal function which results into impairment of excretory, metabolic and endocrine functions leads to development of the clinical syndrome of uremia. Chronic kidney disease (CK.D) is common and harmful but treatable, and it is recognized as a worldwide public health problem.

Materials and methods : 70 consecutive patients of end stage renal disease of any etiology of chronic kidney disease stage 5 who were admitted in the medical wards and dialysis unit in Dr D.Y. Patil Medical College and Research Centre, Pimpri, Pune. Echocardiography machine GE LOGIQ 400 PRO was used with 3-5 MHz transducer probe. Two dimensional echocardiography and M- mode echocardiography performed.

Results: Maximum number of male patients belonged to age group between 51 - 60 years (20) and maximum number of female patients belonged to age group between 51 - 60 years (6).

Conclusion: From this study we may conclude that the incidence of chronic renal failure rises with age and is higher in men and in people of asia , the our finding was underlined.

Introduction:

End stage renal disease (ESRD) is the irreversible deterioration of renal function which results into impairment of excretory, metabolic and endocrine functions leads to development of the clinical syndrome of uremia. Chronic kidney disease (CK.D) is common and harmful but treatable, and it is recognized as a worldwide public health problem. Patients with chronic kidney disease (CK.D) are at significantly increased risk for both morbidity and mortality from cardiovascular disease (CVD). Dialysis patients have a 10- to 30-fold increased risk for cardiovascular mortality compared with the general population' and are the single most important cause of death among patients receiving long-term dialysis, accounting for 44% of overall mortality.¹ The magnitude of the problem has become more apparent as patients survive longer on maintenance hemodialysis. Coronary artery disease, myocardial infarction, congestive heart failure and pericardial Diseases are the common manifestations of major cardiovascular manifestations in the end- stage renal disease. With this background present study was planned to study incidence of cardiac involvement in end stage renal disease.

Materials and methods :

70 consecutive patients of end stage renal disease of any etiology of chronic kidney disease stage 5 who were admitted in the medical wards and dialysis unit in Dr D.Y. Patil Medical College and Research Centre, Pimpri, Pune.

Inclusion criteria

1. All of the patients were previously diagnosed as having chronic kidney disease on the basis of ultrasound and decreased creatinine clearance for more than 3 months.
2. Patients in end stage renal disease stage 5 (GFR less than 1Sml/min per 1.73 m2)
3. Patients on haemodialysis or with renal transplantation.

Exclusion criteria

1. Pre-existing heart disease like rheumatic heart disease, congenital heart disease.
2. Other pre-existing cardiovascular disease like myocarditis due to virus, diphtheria and other infection.
3. Primary heart muscle disease like primary cardiomyopathy.

2D- Echocardiography: Echocardiography machine GE LOGIQ 400 PRO was used with 3-5 MHz transducer probe. Two dimensional echocardiography and M- mode echocardiography performed.150

Observations and results

Table 1. Comparison of age and sex distribution of ESRD study cases.

Gender/ Age	<30yrs	31-40 yrs	41-50 yrs	51-60 yrs	61-70 yrs	71-80 yrs	Column Total
Male	3	2	9	20	18	1	53
Female	3	3	4	6	1	0	17
Total	6	5	13	26	19	1	70

- Out of total 70 patients, there were 53 males (75.7%) and 17 females (24.3%).
- Maximum number of patients belonged to age group 51-60 years (26).
- Mean age of ESRD patients was 53.3 ± 12.8.
- Maximum number of male patients belonged to age group between 51 - 60 years (20) and maximum number of female patients belonged to age group between 51 - 60 years (6).

Table 2. Etiology of ESRD study cases.

Etiology of CRF	No of cases	Percentage
Diabetes	15	21.4
Hypertension	26	37.1
Diabetes/ Hypertension	7	10.0
Chronic glomerulonephritis	6	8.6
Analgesic nephropathy	2	2.9
Polycystic kidney disease	5	7.1
Obstructive uropathy	4	5.7
Unknown	5	7.1
Total	70	100

- Hypertension (37.1 %) was leading cause of end stage renal disease.
- Then diabetes (21.4), diabetes and hypertension (10%), chronic glomerulonephritis (8.6%), polycystic kidney disease (7.1%), obstructive uropathy (5.7%), analgesic nephropathy (2.9%) and unknown (7.1%) were cause of ESRD

Discussion

Premature cardiovascular disease is a significant cause of morbidity and mortality among patients with CRF. Premature atherosclerotic coronary disease is driven by multiple risk factors, including dyslipidemia and oxidative stress. Four main structural abnormalities of the heart have been described in patients with CRF: LV hypertrophy, expansion of the nonvascular cardiac interstitium leading to inter-myocardiocytic fibrosis, changes in vascular architecture, and myocardial calcification. All these abnormalities promote systolic as well as diastolic LV dysfunction which predisposes to symptomatic heart failure, which is a risk factor for premature death.

Prospective cohort studies have demonstrated that left ventricular hypertrophy (LVH) is the most frequent cardiac abnormality in ESRD with 74% of patients demonstrating LVH by the time of starting dialysis.³⁷ This

compares to a prevalence of 20% in the general population.¹⁵¹ Various diagnostic modalities, both invasive and noninvasive such as electrocardiography, echocardiography and radionuclide scans are utilized for diagnosing left ventricular hypertrophy and dysfunction.

In our study, out of total 70 patients, there were 53 males (75.7%) and 17 females (24.3%) suggesting male preponderance. Maximum number of patients belonged to age group 51-60 years (26). In this study, maximum number of male patients belonged to age group between 51 - 60 years (20) and maximum number of female patients belonged to age group between 51 - 60 years (6).

In a study by P. Jungers et al (1996) to determine the age- and gender-related incidence of chronic renal failure in a French urban area, they have found that there was marked preponderance of males and a dramatic increase of incidence with age in both genders. Hida Met al (1985) determined age and sex distribution in chronic renal failure patients at dialysis, they found 50-59 year-old group had the most cases and most were male. In a study by R Maheswaran et al (2000) they found that the incidence of chronic renal failure rises with age and is higher in men and in people of Asian and Afro-Caribbean origin. The above findings were consistent with our study.^{2,3,4}

Conclusion: From this study we may conclude that the incidence of chronic renal failure rises with age and is higher in men and in people of asia , the our finding was underlined.

References:

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