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CARDIOVASCULAR EVALUATION IN CHRONIC KIDNEY DISEASE PATIENTS

Medicine

Dr.Saurav Paul* Third year Resident Doctor. *Corresponding Author
Dr.Sunil.J.Panjwani Associate professor, Department of Medicine, GMC Bhavnagar.

ABSTRACT

BACKGROUND: Cardiovascular disease is the leading cause of morbidity and mortality in patients with CKD. Frequency of fatal and non-fatal cardiovascular events increase even in early stages of CKD and is the most frequent cause of mortality in dialysis patients.
METHOD: This cross-sectional study was conducted on 150 patients of chronic kidney disease.
RESULT:
- In our study, out of 150 chronic kidney disease patients, 112 cases were found to have cardiovascular manifestations.

CONCLUSION:
- This study conclude that cardiac disorders are highly prevalent in patients with progressive CKD. All CKD patients must be evaluated for cardiac co-morbidities, since it might help establish adequate treatment that may potentially improve patient prognosis.

KEYWORDS

CKD: Chronic kidney Disease, CVD: Cardiovascular Disease, LVH: Left Ventricular Hypertrophy, IHD: Ischemic Heart Disease, CAD: Coronary Artery Disease, ACS: Acute Coronary Syndrome CCF: Congestive Cardiac Failure

INTRODUCTION

Chronic kidney disease (CKD) encompasses a spectrum of different patho-physiologic processes associated with abnormal kidney function and a progressive decline in glomerular filtration rate (GFR).

Cardiovascular disease is the leading cause of morbidity and mortality in patients with CKD. Frequency of fatal and non-fatal cardiovascular events increase even in early stages of CKD and is the most frequent cause of mortality in dialysis patients.

CKD itself is a risk factor for cardiovascular disease because of uremic milieu, inflammation, abnormal calcium metabolism and recently the coronary artery calcification gene has been recognized in patients with CKD.

METHODS

Source of Data
The study was conducted at Sir Takhtasinhji General Hospital, Bhavnagar.

Sample Size: 150 cases

Sample procedure: Observational cross-sectional study

Duration: 2019-2020

Inclusion criteria:
- All Patients diagnosed with chronic kidney disease.
- Patients above the age of 12 years.

EXCLUSION CRITERIA:
- Those who are giving negative consent.
- Pregnant patient with chronic kidney disease.
- Patients having congenital heart disease.

This cross-sectional study was conducted on 150 patientsof chronic kidney diseaseadmitted in the medical wards or coming to outpatient department at Sir Takhatsinhji General Hospital, Bhavnagar.After taking written and informed consent all patients were subjected to detailed history and thorough clinical examination. Detailed history of risk factors related with cardiovascular complications was taken. Demographic profile of each patient was recorded. Detailed examinations with special emphasis on renal and cardiovascular system were done. Routine biochemical parameters of blood such as CBC, KFT, Lipid profile were done. All patients were undergone CXR-PA view, ECG measurement and 2D-echocardiography.

RESULTS

Table 1(a): Sex Wise Distribution

SEX	NO. OF PATIENTS
MALE	96 (64%)
FEMALE	54 (36%)

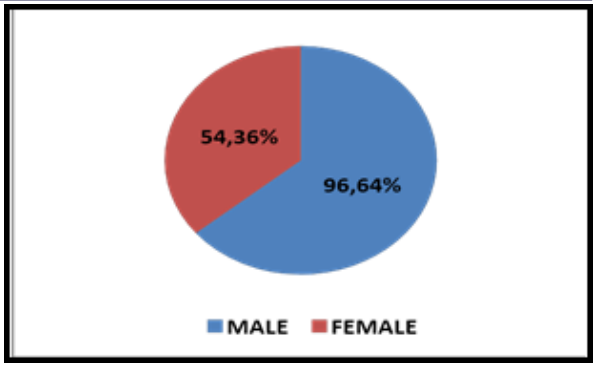

Figure 1: Sex Wise Distribution

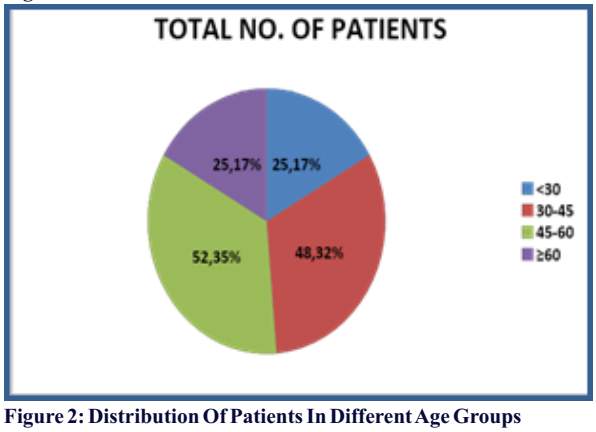

Figure 2: Distribution Of Patients In Different Age Groups

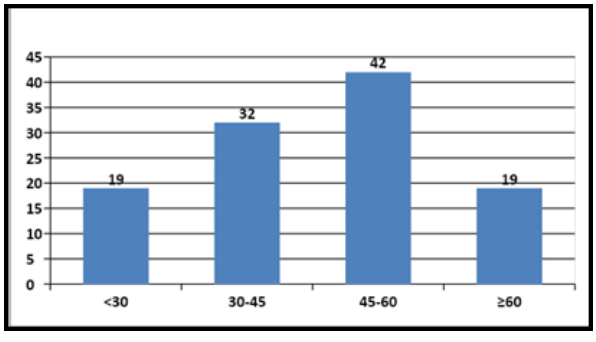

Figure 3: Distribution Of Cardiac Manifestations In Different Age Groups

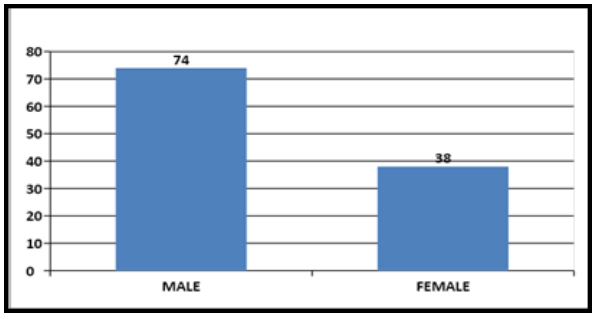

Figure 4: Distribution Of Cardiac Manifestations In Sex

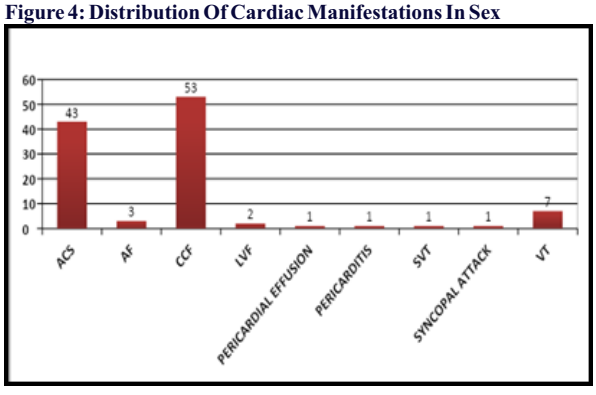

FIGURE 5: DIFFERENT CARDIAC COMPLICATIONS

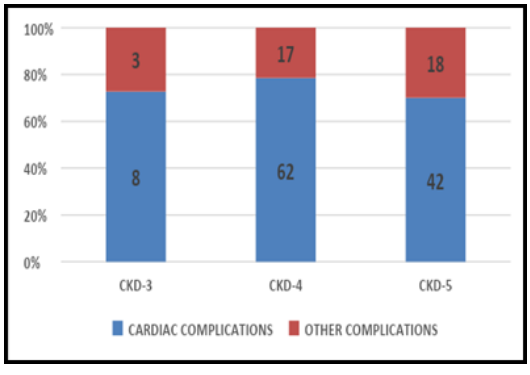

Figure 6: Stages Of Ckd And Complications

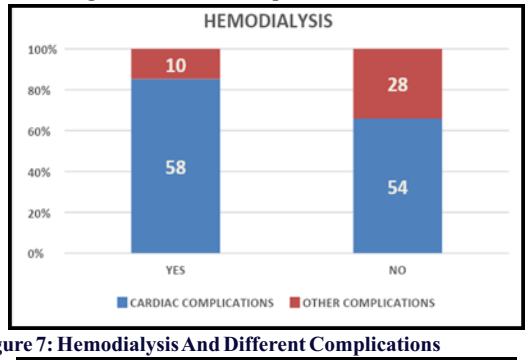

Figure 7: Hemodialysis And Different Complications

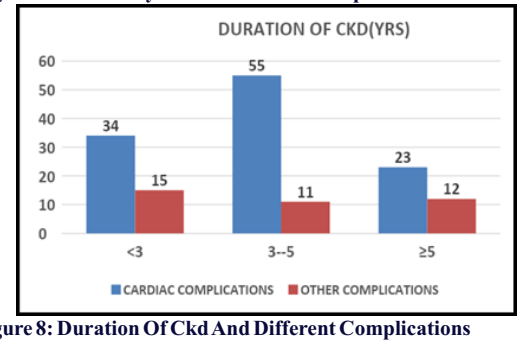

Figure 8: Duration Of Ckd And Different Complications

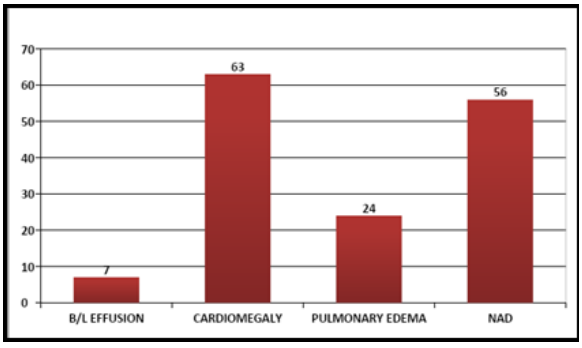

Figure 9: Distribution Of Participants & Chest X-ray Finding

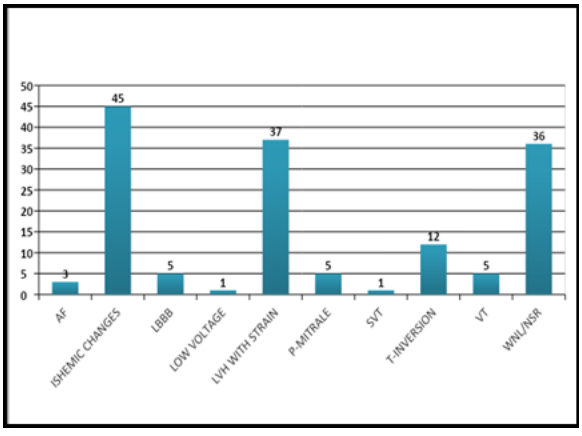

Figure 10: Distribution Of Participants &ecg Finding

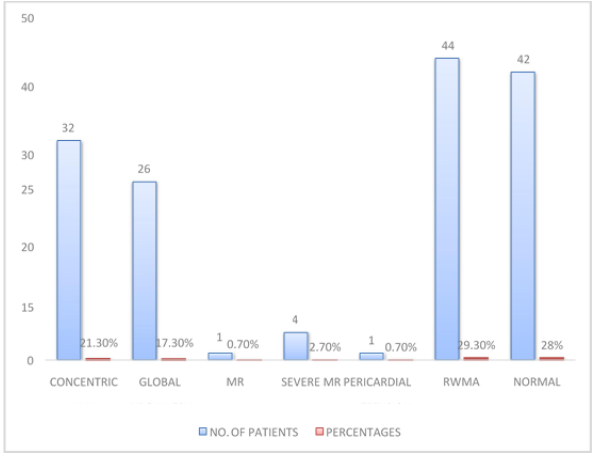

Figure 11: Distribution Of Participants &echo Finding

DISCUSSION

- The study was conducted on 150 patients with established chronic kidney disease admitted in the medical wards or coming to outpatient department at Sir Takhatsinhji General Hospital, Bhavnagar, during the study period of 6 months.

AGE:

In our study, mean age was 44.01±14.57.

SEX:

In our study, among 150 patients of chronic kidney disease, 112 found to have cardiovascular system involvement. There were 74(66.07%) male patients and 38(33.97%) female patients with cardiac manifestations out of 112 patients.

CARDIAC COMPLICATIONS:

In our study, the majority of the patients with cardiac complications had heart failure (47.32%) andischemic heart disease. (38.39%).

CKD STAGES AND COMPLICATIONS:

In our study, most of the patients with cardiac complications were in

CKD stage-4 (55.4%),37.5% were in CKD stage-5 and 7.1% were in CKD stage -3

HEMODIALYSIS AND DIFFERENT COMPLICATIONS:

In our study, it was observed that prevalence of cardiac complications was higher in haemodialysis dependent patients (85.2%).

DURATION OF CKD AND DIFFERENT COMPLICATIONS:

In this study, it was observed that the majority of the patients with cardiac complications had duration of 3-5 years in CKD (49.1%).

DISTRIBUTION OF PARTICIPANTS & ECG FINDING:

In our study,30% of total patients found to have ischemic changes in ECG, whereas24.7% had LVH with strain.

EVALUATION THROUGH ECHO CARDIOGRAPHY:

In our study, on echo cardiography, we found that majority of the patients were having RWMA (29.3%) followed by concentric LVH (21.3%).

CONCLUSION

- Cardio Vascular Disease (CVD) is emerging as the most common cause of death in patients with chronic kidney disease.
- We can conclude from our study that males are affected more from cardiovascular complications in chronic kidney disease with more preponderance in 4th and 5th decade.
- Most of the cardiovascular complications are evident with progression of stage of CKD.
- Coronary artery disease and Left ventricular hypertrophy (LVH) are independent predictors of mortality in chronic kidney disease patients, which can be identified non- invasively using echo cardiography or electrocardiography.
- Hence, cardiac disorders are highly prevalent in patients with progressive CKD. All CKD patients must be evaluated for cardiac co-morbidities, since it might help establish adequate treatment that may potentially improve patient prognosis.
- This study has some limitations. The sample size was less in numbers. Absence of a control group limits a definite assessment of the role of CKD in the pathogenesis of cardiac disorders.
- The study had a cross-sectional design, so no causal relationships with clinical outcomes could be established. Studies with larger sample size with a longer duration will be required to assess the outcome.

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