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Research Article

**INVESTIGATION OF THE TRAITS OF CLINICAL  
THERAPEUTIC DRUGS IN ELDER PATIENTS OF CHRONIC  
HEART FAILURE INTRICATED WITH VARIOUS STAGES OF  
INEFFICIENCY OF KIDNEYS**<sup>1</sup>Dr Sara Najam, <sup>2</sup>Dr Ali Hassan, <sup>3</sup>Dr Masooma Rubab<sup>1</sup>WMO, Doctors Hospital and Medical Center Lahore, <sup>2</sup>House Officer, Jinnah Hospital Lahore,<sup>3</sup>House Officer, Nishter Medical College Multan.**Article Received:** October 2019    **Accepted:** November 2019    **Published:** December 2019**Abstract:**

**Objective:** This research work aimed to investigate the traits of the clinical drugs in elder patients with CHD (Chronic Heart Failure) complexed with various grades of the inefficiency of kidneys.

**Methodology:** The patient with elder age who were admitted from November 2014 to November 2018 in our institute because of chronic heart failure for the very first time were the part of this research work. We carried out the estimation of the GFR (Glomerular Filtration Rate) with the utilization of the study equation of MDRD (Modification of Diet in Renal Disease). We divided the patients into the group with normal function of kidneys, a group with small reduction in the function of kidneys and a group with moderate & severe reduction in the function of kidneys. We carried out the statistical analysis for the comparison of the traits of the clinical drugs for all these groups of the patients.

**Results:** As compared to the group of the patients with normal function of kidneys & group of the slight reduction in renal function, there were less ACEIs &  $\beta$ -blockers utilized in moderate & severe reduction of renal function groups, but there was more use of the diuretics & spironolactone. In comparison with the group of the normal renal function, the rate of use of ACEIs was less while that of diuretics was much high ( $P < 0.050$ ).

**Conclusion:** ACEIs &  $\beta$ -blockers were scarcely employed for the treatment of elderly patients with chronic heart failure complicated with the inefficiency of kidneys but there was frequent utilization of the diuretics & spironolactone.

**Keywords:** ACEIs, CHD, sever, moderate, inefficiency, methodology, diuretics, GFR, modification.

**Corresponding author:****Sara Najam,**

WMO, Doctors Hospital and Medical Center Lahore.

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**INTRODUCTION:**

The gradual decline in the function of cardiac pump is the main reason of CHF. This is a terminal phase of majority of the CVDs (Cardiovascular Diseases), with very low rate of survival. With the increase in population aging and advancement in the conditions of living, there is a rise in the amount of the patients suffering from CVDs which is the reason of the high prevalence rate of CHF. Some data from countries of Europe & America display that about 5 million people of USA normally suffer from chronic heart failure, with greater than 550000 patients newly detected with the complication of CHF every year, with the prevalence for patients having more than sixty five years of age reaching from 6.0% to 10.0% [1]. Inefficiency in the function of kidneys is the most prevalent complication of the chronic heart failure.

ANCHOR [2], CHARM [3] and results of some other large clinical research works display that the prevalence of the inefficiency of the kidney's function among the patients of CHF is from 36.0% to 57.0%. In this research work, we used the study equation of MDRD (Modification of Diet in Renal Disease) to assess the renal efficiency and medical features of therapeutic medicines for patients with elder age with chronic heart failure complexed with different degrees of functional inefficiency of kidneys.

**METHODOLOGY:**

The ethical committee of the institute gave the permission to conduct this research work. We took the written consent from every patient after explaining them the purpose of this research work. This research work selected four hundred and thirty six patients retrospectively who got admission in the hospital because of chronic heart failure in our institute from November 2014 to November 2018. All the patients were fulfilling the diagnostic criteria of Framingham heart failure [4]. The range of the age of patients was from 60 to 98 years, while the median age of the patients was 79 years. There were total 73.90% (n: 322) male and 26.10% (n: 114) female patients.

We classified the cardiac function Grade 2-4 by the grading standard of the cardiac function of cardiology association of New York, of which one hundred and seventy five (40.10%) patients were in Grade-2, 141 (32.30%) patients were in Grade-3 and 120 (27.50%) patients were in Grade-4. In selected patients of this research work, etiology of chronic heart failure included two hundred and fifty five patients of CHD (58.50%), seventy two (16.50%) patients of high heart disease, sixteen (3.70%) patients of rheumatic heart disease, thirty eight (8.70%) patients of dilated cardiomyopathy, twenty nine (6.70%) patients of pulmonary heart disease, and twenty six (6%) patients with other reasons.

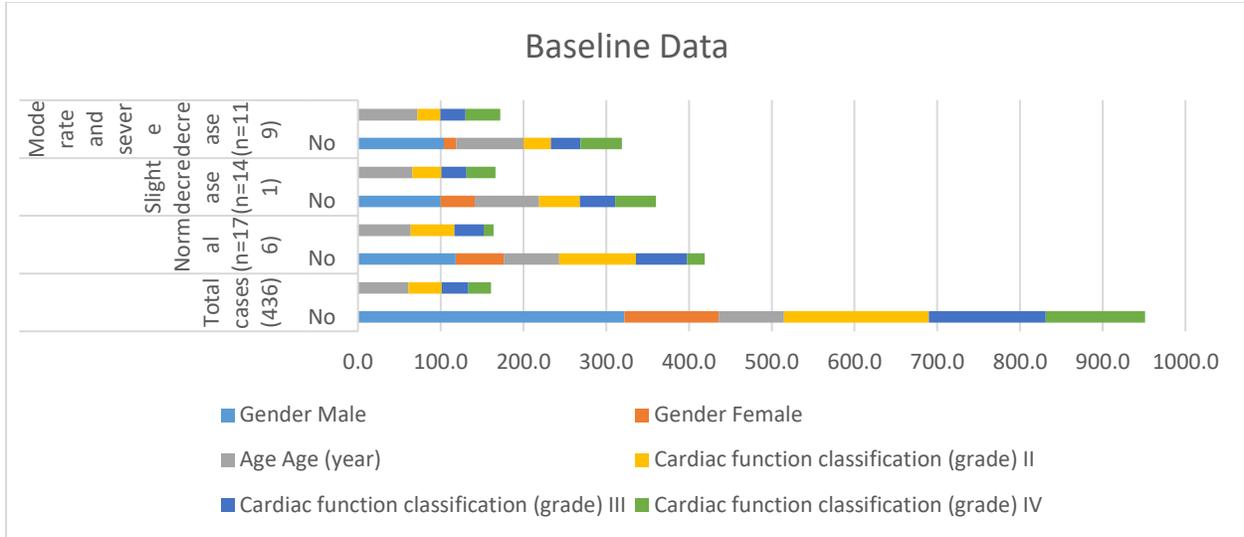
The estimation of the estimated-GFR carried out in accordance with the level of serum creatinine at the time of admission and its calculation carried out with the use of the simplified study equation of MDRD. In accordance with the findings of e-GFR, we divided the four hundred and thirty six patients into 3 groups; groups of patients with normal function of renal efficiency with e-GFR  $\geq 90.0$  ml/(min 1.73m<sup>2</sup>), the group of patients with slight reduction in the renal efficiency with e-GFR 60.0-89.0 ml/(min 1.73 m<sup>2</sup>), the group of patients with moderate & severe reduction in the renal efficiency: e-GFR <60.0 ml/(min 1.73m<sup>2</sup>). SPSS V.17 was in use for the statistical analysis of the collected information. Averages and standard deviations were in use for the representation of the categorical data. Chi-square test was in use for the comparison of the data of all 3 groups.

**RESULTS:**

As compared with the group with normal renal function and group with slight decrease in efficiency, the group with moderate & severe decrease in renal efficiency was older, with some patients of Grade-2 cardiac function & more amount of patients with Grade-4. As compared with the group present with the normal renal function, the patients with the slight reduced function was of older age and had more patients of Grade-4 cardiac function (Table-1).

**Table-I: Baseline clinical data**

Parameters		Total cases (436)		Normal (n=176)		Slight decrease		Moderate and severe	
		No	Percentage	No	Percentage	No	Percentage	No	Percentage
Gender	Male	322.0	-	118.0	-	100.0	-	104.0	-
	Female	114.0	-	58.0	-	41.0	-	15.0	-
Age	Age	79.0	60.98	67.0	63.85	78.0	65.89	81.0	71.98
Cardiac function classification (grade)	II	175.0	40.10	93.0	52.80	49.0	34.80	33.0	27.70
	III	141.0	32.30	62.0	35.20	43.0	30.50	36.0	30.30
	IV	120.0	27.50	21.0	11.90	49.0	34.80	50.0	42.00

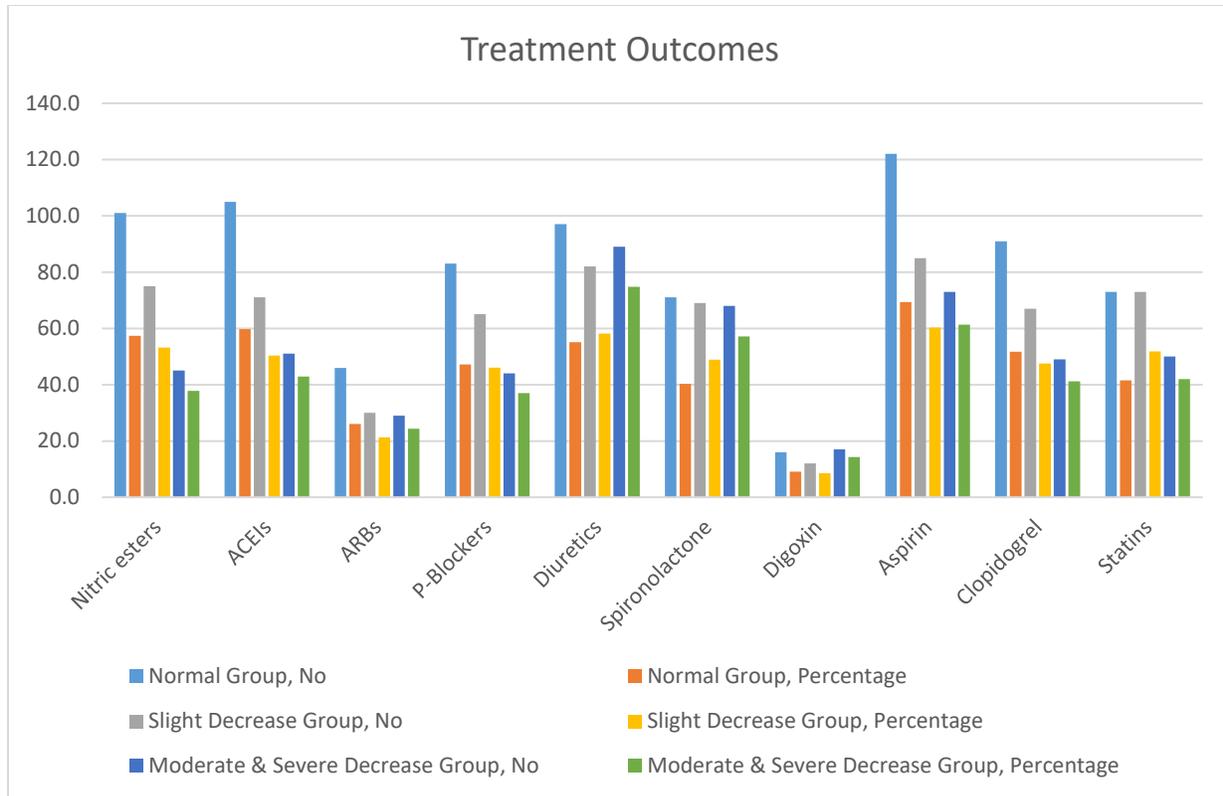


As compared with the group of the normal renal efficiency & group with slight reduction in efficiency, ACEIs & β-blockers were much low in the patients of the groups of moderate & severe decrease in the renal efficiency, but there was more use of diuretics & spironolactone (P<0.050). As compared with the

group of the patients with normal renal efficiency, the rate of use of ACEIs was much low while the rate of use of diuretics was much high. The patients of all the 3 groups utilized the same amounts of nitric esters, digoxin, aspirin, statins & ARBs as presented in (Table-2).

**Table-II: Effect of Clinical Drugs and outcomes of renal function**

Drug	Normal renal function group (n=176 cases)		Slight decrease group (n=141 cases)		Moderate and severe decrease group (n=119)	
	No	Percentage	No	Percentage	No	Percentage
Nitric esters	101.0	57.40	75.0	53.20	45.0	37.80
ACEIs	105.0	59.70	71.0	50.40	51.0	42.90
ARBs	46.0	26.10	30.0	21.30	29.0	24.40
P-Blockers	83.0	47.20	65.0	46.10	44.0	37.00
Diuretics	97.0	55.10	82.0	58.20	89.0	74.80
Spironolactone	71.0	40.30	69.0	48.90	68.0	57.10
Digoxin	16.0	9.10	12.0	8.50	17.0	14.30
Aspirin	122.0	69.30	85.0	60.30	73.0	61.30
Clopidogrel	91.0	51.70	67.0	47.50	49.0	41.20
Statins	73.0	41.50	73.0	51.80	50.0	42.00



### DISCUSSION:

There was deficiency of the research work on larger scale in the treatment of the patients of chronic heart failure present with the reduction in renal function. Adverse control of CHF will lead to the fast decline of the rate of creatinine clearance at 1 mL/minute/month, and the renal inefficiency will increase the development of heart failure. RAAS (Renin Angiotensin Aldosterone System) antagonists are the medicines that have the ability to block the RAAS role, including ARBs & ACEIs. RAAS decrease the danger of death and improve the rate of survival of the patients suffering from chronic heart failure as well as these are very effectual medicines for kidneys [6]. ACEI is the foundation for the treatment of CHF in medicine field. Different research works conducted at different centers have elaborated the advantages of ACEI in CHF treatment. ACEI delays the development of the kidney diseases in the duration of the treatment for chronic heart diseases. ACEI can decrease the mortality of the patients suffering from chronic kidney diseases present with inefficient renal function.

A research work carried out on the patients suffering from severe heart failure, including those patients present with impairment of kidneys, whose deficiency of creatinine was lower than 3.40 g/L. In the patients suffering from severe heart failure getting ACEI, over

30.0% patients were present with the enhanced level of creatinine but there was need of stop of the treatment [7]. The utilization of the diuretics is recently a controversial problem in the treatment of chronic heart failure present with inefficient renal functions.

Gottlieb [9] in his research work examined the impact of diuretics on the function of kidneys and discovered that among patients suffering from congestive failure of heart who utilized single diuretic, the GFR was much reduced regardless of the rise in the volume of urine. Nohria stated that the utilization of the diuretics among patients suffering from severe chronic heart failure may lead to the activation of the neuro-hormones, causing in reduced function of heart and kidneys, so as to cause enhanced mortality of patients & diuretic resistance. Weinfeld [10] discovered that large amount of the doses of diuretics can be the reason of the deterioration of function of kidneys particularly combined with the medicines of ACEI.

### CONCLUSION:

This is very serious challenge to treat the elder patients of chronic heart failure present with inefficiency of kidneys and unnecessary capacity overload & unresponsive to diuretics. Whether rational usage of

the diuretics can obtain the success of treatment of chronic heart failure is the most important key factor.

#### REFERENCES:

1. Amsalem Y, Garty M, Schwartz R, Sandach A, Behar S, Caspi A, et al. Prevalence and significance of unrecognized renal insufficiency in patients with heart failure. *Eur Heart J*. 2008;29(8):1029-1036. doi: 10.1093/eurheartj/ehn102.
2. Di Bari M, Pozzi C, Cavallini MC, Innocenti F, Baldereschi G, De Alfieri W, et al. The diagnosis of heart failure in the community. Comparative validation of four sets of criteria in unselected older adults: the ICARE Dicomano Study. *J Am Coll Cardiol*. 2004;44(8):1601-1608. doi: 10.1016/j.jacc.2004.07.022.
3. Chinese eGFR Investigation Collaboration. Modification and evaluation of MDRD estimating equation for Chinese patients with chronic kidney disease. *Chinese J Nephrol*. 2006;22(10):589-595.
4. Yusuf S, Pfeffer MA, Swedberg K, Granger CB, Held P, McMurray JJ, et al. Effects of candesartan in patients with chronic heart failure and preserved left-ventricular ejection fraction: the CHARM-Preserved Trial. *Lancet*. 2003;362(9386):777-781. doi: 10.1016/S0140-6736(03)14285-7.
5. CONSENSUS trial study group. Effect of enalapril on mortality in severe congestive heart failure: result of the north Scandinavian enalapril survival study (CONSENSUS). *N Engl J Med*. 1987;316(23):1429-1435. doi: 10.1056/NEJM198706043162301.
6. Hou FF, Zhang X, Zhang GH, Xie D, Chen PY, Zhang WR, et al. Efficacy and safety of Benazepril for advanced Chronic Renal Insufficiency. *N Engl J Med*. 2006;354(2):131-140. doi: 10.1056/NEJMoa053107.
7. Gottlieb SS, Brater DC, Thomas I, Havranek E, Bourge R, Goldman S, et al. BG9719 (CVT-124), an A1 adenosine receptor antagonist, protects against the decline in renal function observed with diuretic therapy. *Circulation*. 2002;105(11):1348-1353.
8. Weinfeld MS, Chertow GM, Stevenson LW. Aggravated renal dysfunction during intensive therapy for advanced heart failure. *Am Heart J*. 1999;138(2 Pt 1):285-290.
9. Redfield MM, Jacobsen SJ, Burnett JC Jr, Mahoney DW, Bailey KR, Rodeheffer RJ. Burden of systolic and diastolic ventricular dysfunction in the community: appreciating the scope of the heart failure epidemic.
10. *JAMA*. 2003;289(2):194-202.
11. Go AS, Yang J, Ackerson LM, Lepper K, Robbins S, Massie BM, et al. Hemoglobin level, chronic kidney disease, and the risks of death and hospitalization in adults with chronic heart failure: the Anemia in Chronic Heart Failure: Outcomes and Resource Utilization (ANCHOR) Study. *Circulation*. 2006;113(23):2713-2723. doi: 10.1161/CIRCULATIONAHA.105.577577.