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ANALYSIS OF ROLE OF STATINS ON CARDIAC PATIENTS WITH CHRONIC KIDNEY DISEASE AMONG LOCAL POPULATION OF PAKISTAN

Dr Faran Shahid[1], Dr Jamshed[2], Dr Nida Athar[3]
[1]Services hospital Lahore, [2]Ayub Medical College, [3]DHQ Hospital Faisalabad

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Abstract:
Introduction: *Chronic kidney disease (CKD) affects an estimated 19 million people in the United States, representing 11% of the total adult population.*
Objectives of the study: *The basic aim of the study is to analyse the role of statins on cardiac patients with chronic kidney disease among local population of Pakistan.*
Methodology of the study: *This cross-sectional study was conducted in Services hospital, Lahore during November 2018 to March 2019. The data was collected from 50 patients who was suffering from cardiovascular disease and kidney disease. For this purpose, we make two groups of study. One group was control group and the other group was suffering from CVD and kidney problems.*
Results: *The data was collected from 50 patients. The data shows the BMI, age, Total cholesterol level and other basic values. We can find that cholesterol level is high in patients as compared to normal values. We also shows the comparison of statin group and normal group. ROC curve explained the specificity and sensitivity of statin therapy in patients.*
Conclusion: *It is concluded that patients with CKD are at high risk for CVD. Moreover, there is significant evidence showing that patients with CKD benefit from statin therapy with improvement of CV outcomes.*

Corresponding author:
Dr. Faran Shahid,
Services hospital Lahore.

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INTRODUCTION:

Chronic kidney disease (CKD) affects an estimated 19 million people in the United States, representing 11% of the total adult population. Chronic kidney disease may be divided into 5 stages on the basis of glomerular filtration rate (GFR) and evidence of structural or functional renal abnormalities, such as persistent albuminuria or proteinuria [1]. Stages 1 and 2 are characterized by evidence of kidney damage with normal or mildly reduced GFR, respectively, whereas stages 3 to 5 indicate progressively greater reductions in GFR below 60 mL/min per 1.73 m^2 with or without known etiology of kidney damage [2]. When both kidneys are involved, any GFR less than 60 mL/min per 1.73 m^2 should be considered to be due to renal injury and therefore pathological.

Rates of progression of CKD may differ; rarely, patients may even improve. In general, however, the condition of persons with CKD will deteriorate [3]. The progressive course of CKD is a function of many factors, including the presence of concomitant disease, such as diabetes mellitus or proteinuric glomerular disease. Most patients with CKD have stage 1 to 3 disease; an estimated 7.6 million people have stage 3 disease. However, nearly 500,000 people in the United States are in the most advanced stage of CKD, also known as end-stage renal disease (ESRD), and require regular dialysis treatment [4].

Chronic kidney disease (CKD) is a major public health problem. Cardiovascular disease (CVD) keeps on being the leading cause of morbidity and mortality among individuals with CKD around the world, with rates of cardiovascular occasions and mortality reliably expanding as kidney work decays [5]. Dialysis patients have death rates up to 40-crease higher than the overall public, with CVD being in charge of up to half of these passing. Patients with CKD have higher commonness of various hazard factors for CVD, including lipid variations from the norm, hypertension, stoutness, and diabetes [6].

Statins are outstanding to reduce cardiovascular (CV) occasions and mortality in patients with coronary supply route disease. The fundamental impact of the statins is to bring down low-thickness lipoprotein cholesterol (LDL-C). Be that as it may, statins additionally apply critical pleiotropic impacts, including calming and antithrombotic activities, and also change of endothelial capacity [7].

OBJECTIVES OF THE STUDY:

The basic aim of the study is to analyse the role of statins on cardiac patients with chronic kidney disease among local population of Pakistan.

METHODOLOGY OF THE STUDY:

This cross-sectional study was conducted in Services hospital, Lahore during November 2018 to March 2019. The data was collected from 50 patients who was suffering from cardiovascular disease and kidney disease. For this purpose, we make two groups of study. One group was control group and the other group was suffering from CVD and kidney problems. The second group was also get the statin therapy for the cure of their problem but the control group was not get any kind of therapy they just get normal medication. Then we collect the socio-economic status and therapy status of both groups. Then we analyze the data and find that either statin therapy is helpful for patients or not.

STATISTICAL ANALYSIS:

Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULTS:

The data was collected from 50 patients. The data shows the BMI, age, Total cholesterol level and other basic values. We can find that cholesterol level is high in patients as compared to normal values. We also shows the comparison of statin group and normal group.

Table 01 shows the values of analysis of statin therapy in patients. It shows the comparison between two groups on the basis of functional values. ROC curve explained the specificity and sensitivity of statin therapy in patients (Figure 01).

Table 01: Comparison between two groups in structural and functional parameters

Group	IMT (µm)	CC (mm^2/KPa)	α	β
CVD Group	694.88±77.63	0.89±0.13	5.68±1.23	11.25±1.01
Control Group	586.87±62.12	0.96±0.08	4.77±0.62	9.24±1.24
T value	7.818	-3.115	4.712	9.004
P value	0.000	0.002	0.000	0.000

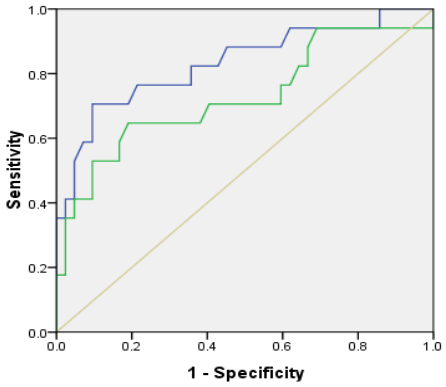

Figure 01: ROC curve of statin therapy in patients

DISCUSSION:

If dyslipidemia promotes renal injury, then reducing dyslipidemia should slow or prevent the progression of CKD. Indeed, experimental models show that 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase inhibitors, or statins, decrease the severity of glomerular damage and preserve renal function [8]. For example, New Zealand rabbits fed a diet rich in cholesterol became hypercholesterolemic, with evidence of endothelial dysfunction in renal segmental arteries as well as glomerular hypertrophy and diffuse glomerulosclerosis. In this model, atorvastatin attenuated the increase in plasma cholesterol and prevented renal artery endothelial dysfunction, glomerular hypertrophy, and most of the glomerulosclerosis [9].

This large quantitative survey, incorporating 31 trials with in excess of 48 000 people, proposes that treatment with statin reduces the danger of cardiovascular occasions crosswise over various levels of kidney work. Major cardiovascular occasions are reduced by 23%, incorporating a 22% lessening in coronary occasions, and 9% decrease in cardiovascular or all-cause passing [7]. No noteworthy impact was seen on the danger of kidney disappointment, or on the danger of unfriendly occasions including disease mortality. End focuses for the assessment of the impact of statin treatment on renal capacity in patients with CKD have included protein discharge and movement of CKD [5].

Starting examination indicated distinctive rates of expanded protein discharge with different statins. Be that as it may, clinical investigations that particularly assessed the impact of statin treatment on protein discharge yielded clashing outcomes, with some exhibiting a lessening in proteinuria and others demonstrating no impact. There are clashing information concerning the impact of statins on movement of CKD [10].

A few investigations have recommended that statins may moderate the rate of decrease in renal capacity in patients with mellow to direct renal brokenness, though others have discovered that statins were not better than fake treatment and common care. In an extremely late substantial meta-examination incorporating 57 considers with 143 888 members, statins did not reduce the hazard for kidney disappointment in patients with CKD not on dialysis but rather did unobtrusively reduce proteinuria and rate of assessed glomerular filtration rate (eGFR) decay [11].

CONCLUSION:

It is concluded that patients with CKD are at high risk for CVD. Moreover, there is significant evidence showing that patients with CKD benefit from statin therapy with improvement of CV outcomes.

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