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Association of Non Alcoholic Fatty Liver Disease and Chronic Kidney Patient

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Abstract: ***Aim: To find out the association of non alcoholic fatty liver disease in chronic kidney disease patient. Objective: To assess the relationship between non alcoholic fatty liver and the metabolic function of kidney in chronic kidney disease patients. Materials and Method: Records of CKD patient for duration of six months was assessed from saveetha medical college. The records were screened for the prevalence of NAFLD in patients with CKD. Statistical analysis was done. Background: Nonalcoholic fatty liver disease spectrum ranges from simple steatosis to nonalcoholic steatohepatosis and cirrhosis. Non alcoholic fatty liver disease mainly affects patients with metabolic syndrome, obesity and type 2 diabetes. CKD and NAFLD share the common risk factors and pathogenic mechanism which shows increased relationship between CKD and NAFLD. Conclusion: Chronic kidney disease affects 4-13% of world's population. CKD leads to renal failure which will require kidney transplant and NAFLD which in turn leads to cirrhosis which requires liver transplant as the treatment of choice. Hence, this research will be useful for it can be used for treatment strategies, prevent morbidity and mortality.***

Keywords: non alcholic fatty liver disease, chronic kidney disease

1. Introduction

Non alcoholic fatty liver disease includes the entire range of liver injury from steatosis, to steatohepatitis, and finally cirrhosis. Depending on the diagnostic criteria used the prevalence of NAFLD ranges from 10% to 24% in the general population. [1]The prevalence of NAFLD increases with age, from less than 20% in people under the age of 20 to more than 40% in people over 60s.[2] the high prevalence of NAFLD has recently been associated with Chronic kidney disease. This disease occurs in people who do not consume large amounts of alcohol. NAFLD is strongly associated with various factors such as obesity, diabetes, hypertension, and atherogenic dyslipidemia, and it is now regarded as the hepatic manifestation of the metabolic syndrome.[3]

Chronic kidney disease (CKD) is a worldwide health problem which results in high morbidity, mortality, and health care costs. Chronic kidney disease is defined as a sustained reduction in the glomerular filtration rate (GFR) or evidence of structural or functional abnormalities of the kidneys based on urinalysis, biopsy, or imaging.[4]Chronic kidney disease (CKD) is a worldwide health problem and according to data from the United States population- based on National Health and Nutrition Examination Survey (NHANES III) the prevalence of CKD in the United States is approximately 13% Beside being a risk factor for end-stage renal disease (ESRD), CKD is an important cardiovascular disease (CVD) risk factor, and most patients with CKD die from CVD before any renal replacement therapy is initiated.[5]CKD has many potential causes, which vary in frequency between different populations. In developed countries, older age, hypertension, diabetes, obesity, and dyslipidemia are consistently associated with CKD.

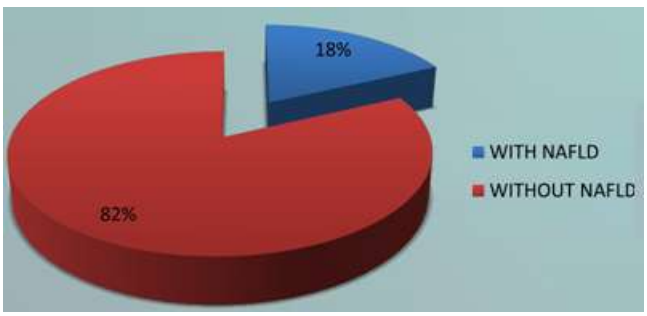
2. Materials and Methods

Case sheets of patients who suffered from chronic kidney disease was selected. The case sheets for a duration of six months from January 2016 to June 2016 were screened for the study. The records were screened for the prevalence of Non alcoholic fatty liver disease in patients with Chronic kidney disease. The records were tabulated and results were analyzed.

3. Results

The study shows that 18 %of the chronic kidney disease patients have nonalcoholic fatty liver which is most common among people of age 55 years. Data analysis shows that 82% of people with chronic kidney disease are not affected with chronic kidney disease which is more prevalent among the people of age 50 years.

4. Discussion



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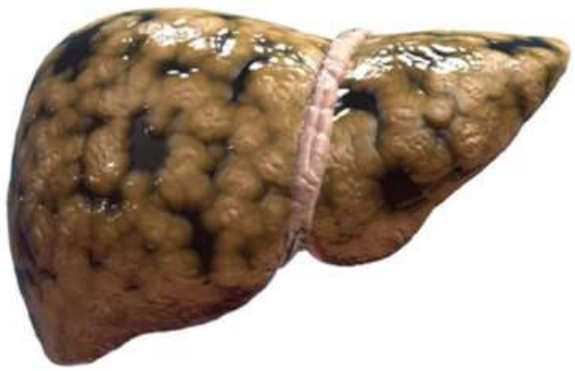

CKD and NAFLD share many cardio metabolic risk factors, perhaps two diseases are closely associated with one another. Understanding the complex and intertwined mechanisms that link NAFLD and CKD is important not only because of the societal health burden of both diseases but also because novel insights into the underlying mechanisms may lead to new strategies to prevent or treat CKD and its associated co-morbidities. [6]

The liver is the central organ for the production of various classical biomarkers for inflammation and endothelial dysfunction, the secretion of which partly depends on factors that are up regulated in the presence of IR and the MS. There is growing evidence which suggests that in patients with Non alcoholic fatty liver diseasethere is increased production and release of various proinflammatory cytokines [7]. Therefore, systemic release of various promoters of inflammation, such as increased reactive oxygen species, TGF-β, TNF-α, C-reactive protein (CRP), plasminogen activator inhibitor-1, and IL-6, which are produced by hepatocytes and nonparenchymal cells, which includes Kupffer cells and hepatic stellate cells, can be one of the possible mediators that link NAFLD and CKD [3].

NAFLD and CKD also share similar treatment progress, which are mostlyaimed at reducing insulin resistance and modifying the associated cardio-metabolic risk factors.Patients are recommended for weight reduction, through diet and physical exercise, and to the treatment of individual components of the metabolic syndrome with the use of therapies that may have beneficial hepatic effects, including bariatric surgery for obesity, insulin-sensitizing agents for type 2 diabetes, and drugs directed at the renin-angiotensin system for hypertension.[8]

Orflic did a study on association of chronic kidney disease with non alcoholic fatty liver disease and the prevalence rate was found to be 20%. [2]

Giovanni Targher conducted a study on risk of chronic kidney disease with non alcoholic fatty liver disease and the prevelance rate was found to be 25%. It was a retrospective study.[1].

5. Conclusion

In conclusion, our results suggest that patients with histological confirmed Non alcoholic fatty liver disease have moderately decreased eGFR and a greater frequency of abnormal albuminuria and Chronic kidney disease.physician awareness for screening of CKD in NAFLD may lead to earlier detection and treatment of this disease leading to better outcomes in patients with liver steatosis as well as more advanced fibrosis requiring organ transplantation.

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