CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3560947

Available online at: http://www.iajps.com Research Article

OUTCOME OF PRIMARY AND SECONDARY GLOMERULAR DISEASES

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Abstract:

Objectives: *The aim of this study is to find outcome of the primary glomerular diseases and secondary glomerular diseases in a duration of complete one year follow ups.*

Methodology: *This is an observational research work conducted in Nishter Hospital Multan. We collected all the data on a Performa. We included all the patients present with the dipstick positive proteinuria and the presence of the glomerular disease. All the patients without proteinuria and the patients in the Stage-5 of chronic kidney disease were not the part of this research work. We followed up all the patients for proteinuria and insufficiency of the renal function for complete one year. SPSS V.16 was in use for the statistical analysis of the collected information.*

Result: *There were total 173 patients who completed the complete one year of follow up. The average age of the patients was 51.67 ± 10.16 with a range from fifteen to seventy-five years. There were 53.20% (n: 92) male and 46.80% (n: 81) female patients in this research work. The average body weight of the patients was 67.43 ± 14.13 Kg with a range from thirty to one hundred and seven kilograms. The most common reason of the glomerular disease in the patients of this research work was diabetic nephropathy which was present in 94.20% patients. The most common related issue with the glomerular disease was HTN (Hypertension) which was present in 66.50% of patients. Out of total 173 patients, 4 patients were in Stage-5 of chronic kidney disease at the end of follow up period of one year whereas proteinuria was same at the end of complete one year.*

Conclusion: *The follow up for one year is very critical for the patients suffering from glomerular complications related with the Stage-4 of chronic kidney disease as development to the end stage kidney failure may be observe in one year in these subjects.*

KEY WORDS: *End-Stage, Chronic Kidney Disease, Glomerular, Nephropathy, Proteinuria, Mortality.*

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Please cite this article in press Pakiza Fatima et al ***Outcome Of Primary And Secondary Glomerular Diseases.,*** *Indo Am. J. P. Sci, 2019; 06(11).*

INTRODUCTION:

Glomerular diseases are very essential reason of high rate of morbidity as well as mortality. With proper care, the rate of development of these complications can be reduced and it can slow down the ESRF (End Stage Renal Failure). There are many published research works on glomerular diseases detected on biopsies of kidney. The most common primary glomerular disease in the small aged children is discovered focal and FSGS (Segmental Glomerulosclerosis) and primary glomerular diseases are responsible for 49.0% and secondary glomerular diseases accounts for 30.0%. The most common primary disease was the membrano-proliferative and most common secondary disease was the lupus present in youngsters. Research work conducted from Oman has displayed primary glomerular abnormalities in 58.0% and secondary glomerular abnormalities in 30.40% of four hundred and twenty-four renal biopsies, the most common secondary reason was lupus and most common primary reason was FSGS.

HTN, diabetes mellitus and dyslipidemia are the main possible factors which are mostly present in the patients suffering from glomerular diseases and all these factors are modifiable, control of these factors can reduce the development of the kidney diseases. This is also elaborated by many other research works. Risk of the chronic kidney diseases rises with 3 or more factors of the MS (Metabolic Syndrome) and age in the patients of diabetes as elaborated in a research work conducted in Rawalpindi. In this research work, we observed the rate of these related problems with these glomerular complications.

METHODOLOGY:

This study was an observational research work conducted at Nishter Hospital Multan. We collected the data of the patients who were suffering from glomerular disease. We enrolled the patients for this research work from June 2018 to May 2019. We took the consent from all the patients. We followed the patients for complete one year after their enrollment in this research. We used simple convenient procedure for sampling. Adult patients attending nephrology OPD and suffering from glomerular disease were the part of this research work. The patients with less than 15 years of age, not willing to participate, without proteinuria, or with proteinuria in addition with Stage-5 of chronic kidney disease at the enrollment time were not included in this research work. The detection of the glomerular disease as secondary or the primary carried out by physician depending on the availability of the proteinuria with the support of the reports from laboratory which was also including the biopsies for the identification of the primary disease. We also noted the associated problems from the records of the patients. We carried out all the associated laboratory tests for assessment. We used the serum creatinine for the calculation of the creatinine clearance (Cr cl) with the use of the Cock-Croft Gault formula. SPSS V.16 was in use for the statistical analysis of the collected information.

RESULTS:

Total 413 patients with glomerular disease visited the OPD in the duration of the enrollment period, among them 324 patients gave their consent to take part in the research but after the complete follow up, there were only 173 patients in this research work. So, total number of the patients in this research work were one hundred and seventy-three. The average age of the patients was 51.67 ± 10.16 with a range from 15 to 75 years. The average body weight of the patients was 67.43 ± 14.13 with a range from 35.0 to 107.0 kilograms. The most common glomerular disease present in this research work was diabetic nephropathy which was present in 94.20% patients. This was followed by lupus which was present in 1.730% patients. Table-1 shows all the reasons of these diseases in our study population.

Table-I: Primary And Secondary Glomerular Diseases Frequencies (n=173)

Type	Disease	Frequency	Percent
Secondary Glomerular Disease	Diabetes Mellitus	163	94.2
	Lupus	3	1.73
	Sarcoidosis + DM	2	1.15
	Amyloidosis	1	0.6
	Post streptococcal GN	1	0.6
Primary Glomerular Disease	FSGS	1	0.6
	Ig M Nephropathy	1	0.6
	Membranous Nephropathy	1	0.6
	Mesangiocapillary GN	1	0.6
	IgA Nephropathy	1	0.6

We found the main reason as HTN in the study population of this research work. We also detected the insufficiency of renal function and dyslipidemia in greater than half amount of the patients and rates are present in Table-2.

Table-II: Frequency Of Different Associated Problems Among Study Patients (n=173)

Associated Morbidities	Yes		No		Unknown	
	No	Percent	No	Percent	No	Percent
Diabetes mellitus	163	94.2	10	5.78	0	0
Hypertension	115	66.5	58	33.5	0	0
Renal insufficiency	98	56.6	75	43.4	0	0
hypertiglyceredemia	85	49.1	83	48	5	2.9
Hypercholesterolemia	72	41.6	96	55.5	5	2.9
Clinical Nephrotic syndrome	4	2.3	169	97.7	0	0
Microscopic hematuria	2	1.2	171	98.8	0	0

The result of evaluation after follow up of complete 1 year are present in Table-3. There were no alterations discovered in the levels of proteinuria in our study population. There were total three patients present with nephrotic syndrome at the initial stage of this research wok and this rate was same at the termination of this research work. One participant displays the negative proteinuria on the dipstick at complete 1-year follow-up, to start with this patient was lower than one gm of proteinuria. Stage-5 chronic kidney disease with Cr cl of lower than 15.0 ml/min was present 2.10% (n: 3) patients at six months and in 2.90% (n: 4) patients at 1-year follow-up. We noted no deaths in this research work for complete one year of follow-up.

Table-III: Results of Cr cl and Proteinuria On Completion Of One Year

Cr clearance (ml/min)	At start of study N=173(%)		At six months N=141(%)		At one year N=137(%)	
	No	Percent	No	Percent	No	Percent
>90	81	46.8	76	53.9	72	52.5
60-89	51	29.5	30	21.2	31	22.6
30-59	30	17.3	21	14.8	20	14.6
15-29	11	6.4	11	7.8	10	7.3
<15	0	0	3	2.1	4	2.9
Not available	0	0	32	22.69	36	26.27
Proteinuria	At start of study N=173(%)		At six months N=173(%)		At one year N=172(%)	
negative	0		0		1	-
<1 gm/d	156	90.2	153	88.4	153	88.9
1-3.5 gm/d	14	8.1	17	9.8	15	8.7
>3.5 gm/d	3	1.7	3	1.7	3	1.74
Not available	0	0	0	0	1	-

DISCUSSION:

The primary and secondary glomerular diseases are essential reason of high rate of morbidity as well as mortality. The findings of renal biopsy can detect the presence of the primary glomerular diseases. Majority of the secondary diseases can be detected in the availability of the systemic disease and related involvement of kidneys as assessed by the tests of laboratory. There is requirement of biopsy for the identification of the secondary disease when there is doubt. Secondary disease was more frequent (98.0%) in comparison with the primary glomerular diseases. The epidemiological information from some region of China on the biopsies of the confirmed patients of glomerular disease have displayed that the prevalence of primary diseases in more common as compared to the secondary diseases.

We observed no gender discrimination in this research work. HTN, diabetes, inefficiency of the renal function and hypertriglyceridemia are the associated clinical issues with the glomerular diseases. All these complications can lead to the heart diseases in the patients already suffering from kidney issues. Various works showed that timely intervention in chronic kidney disease or treatment can prevent or delay the end stage disease. Various research works put their efforts to examine the consequence of the glomerular diseases and to detect the modifiable factors of risks for the improvement in prognosis. One research work conducted on five hundred patients showed high rate of survival in the patients suffering from Type-1 diabetic nephropathy. Majority of research works conducted to display the protective role of statins in chronic kidney disease. This protective role is well-recorded.

Some other factors as BMI and ethnicity can also have impacts on diabetic nephropathy. Familial FSGS carry the adverse prognosis as compared to the sporadic FSGS. The failure of the treatment in Lupus is acknowledged risk factor for development towards the end stage kidney problems. The development of the chronic kidney disease from Stage-3 to Stage-5 is predicted by the male sex, diabetes mellitus, less hematocrit, high systolic blood pressure and less albumin. Appropriate handling of the levels of blood glucose, BP and profiles of lipids have already displayed to have association with the decrease of the microalbuminuria. Overall outcome of the research was not describing any extraordinary alteration in Cr cl of the patients having levels greater than 30.0 ml/minutes.

CONCLUSION:

There is more prevalence of the secondary glomerular diseases in comparison with the primary glomerular diseases, and the most common reason is the diabetic nephropathy. We detected no alteration in the level of proteinuria in one year of follow up. The one year follow up is very critical for the patients suffering from glomerular disease with Stage-4 of chronic kidney disease as the development to the Stage-5 may be seen in one year.

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