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Research Article

### AN ILLUSTRATIVE RESEARCH TO ASSESS “NDRD” (NON-DIABETIC RENAL DISEASE) FREQUENCY IN THE PATIENTS DIAGNOSED WITH T2DM (TYPE 2 DIABETES MELLITUS)

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#### Abstract:

**Objective:** In type 2 diabetes patients who encounter renal biopsy for unbalanced kidney functions, to measure the frequency NDRD is the main objective of this research. These unbalanced functions of kidney comprised hematuria, proteinuria in the nephrotic and non-nephrotic range and quality increase kidney failure.

**Methods:** This research held at Allied Hospital, Faisalabad from January 2017 to December 2017 (Department of Pathology). This assessment of kidney surgery was done of 73 patients of type 2 diabetes. These patients were also likely to have kidney disorder except diabetic glomerulosclerosis (DGS). This was due to unidentified hematuria, in nephrotic and non-nephrotic position presence clinically important proteinuria and quickly increasing kidney failure or unidentified kidney failure with usual kidney size. As observed on the light microscope and immunofluorescence investigations, the damaged kidney was reported in three group of patients. The patients in group-1 had just NDRD, in group 2, patients have NDRD along with DGS and patients' group 3 had only DGS. Using SPSS software, the association of investigation with the detached figure in each group and diabetes timing were measured and estimated.

**Result:** Total 73 patients were included in the study. Out of these 73, males and females were 46 and 27 respectively (1 7:1). During the performance, group 1 and 2 tries to have patients with low ages (49.26 ±9.37 years and 49.0 ±5.27 years respectively) as compared with group 3. (53.62 ±6.62 years). The mean diabetic time period in group 1 was observed 9.9 ±10.42 years in group 2-time duration was 7.5 ±3.38, and in group 3, 13.31 ±1.71. 30 patients (41.1%) out of 73 had only NDRD, 6(8.21%) had NDRD along with DGS while in 37(50.7%), only DGS was noticed. The abrasions that were very usual include Focal segment glomerulosclerosis (FSGS) and tubulointerstitial nephritis (TIN) and their presence was reported as 22.2% and 19.4% respectively. In NDRD patients of group 1 and 2 (3.064 ±1.38gms/24hrs and 3.316 ±0.97 gms/24hrs respectively) the quantity of proteinuria was higher, as compared to DGS patients of group 3 (2.815 ±0.916 gms/24 hrs.). But these values are not important statistically. If we compare serum cretonne in all groups, it was found remarkably higher in group 3 patients (3.391 ±0.95 mg/dl) and group 1 (2.563 ±0.95 mg/dL) and group 2 (2.633 ±0.952 mg dl) (p=0.0002). In NDRD patients, the hematuria was noticed in higher quantity (32.5% in group 1 and 33.3% in group 2) as compare to patients of DGS in group 3 But these figures are not imported statistically.

**Conclusion:** The study suggests that in type 2 diabetic patients, a high quantity of NDRD is present. These patients encounter surgery of kidney due to due to the damaged working of the kidney. The study also highlights the importance of surgery in patients experiencing the renal failure so that control disease could be adapted accordingly.

**Keywords:** Type II diabetes, Diabetic glomerulosclerosis, Non-diabetic renal diseases.

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## INTRODUCTION:

More than 95% of the patients have been observed to a victim of renal disorder. These patients are going through diabetes mellitus and depend on insulin (DDM) or Type 1 diabetes for more than 10 years. The patients may have diabetic retinopathy and neuropathy, particularly which is due to diabetes nephropathy (DN). Its presence is proved in more than 95% of patients as a result of analysis [1,2].

All over the world, the increase in the prevalence of type 2 diabetes or non-insulin dependent (NIDDM) is observed. Although under ideal environmental conditions, the participant of the kidney in the route of diabetes is usual. [3,4]. 12-81% of the abrasions of kidney were because of the non-diabetic disorders of the kidney. The identification of the disease is done from various series along with its various spectral. The above percentage is a result of retrospective studies of types 2 diabetic patients with the association of kidney.

In patients of type 2 diabetes, the existence of proteinuria can identify the failure of the kidney. There will be a greater chance for the patients to have NDRD if proteinuria or exotic kidney failure is diagnosed in the start of diabetes. Also, in the condition of unavailability of retinopathy, there is an indication of proteinuria an unidentified kidney failure in type 2 diabetes patients, it will also contribute to the chance of NDRD. The stress on the estimation of surgery of kidney is laid in the following years. This estimation was meant to initiate the reason of kidney anatomy for a clear importance of prediction. As using treatment procedures many NDRD showed improved results [5]. The therapeutic choices are changes due to similarly between DN and NDRD. So, the difference between DN and NDRD is unclear on a clinical basis and usually on surgery of kidney [6], this difference is resolved. 20-39% of patients of type 2 diabetes were with NDRD [1]. This percentage was shown in a restricted number of possible studies. These studies were related to type 2 diabetes patients with the association of kidney. In our country, there is a restriction in the diagnosis of NDRD in patients with type 2 diabetes. For type 2 diabetic patients, a study was conducted which show the frequency and spectrum of NDRD. These patients experienced the kidney operation due to damaged kidney working. These may include hematuria, proteinuria in the nephrotic and non-nephrotic range and quickly increasing failures of Laine.

## PATIENTS AND METHODS:

This research held at Allied Hospital, Faisalabad from January 2017 to December 2017 (Department of

Pathology). These biopsies were related to diabetic type 2 patients. Those kidney tissues that have control area with 5-10 glomeruli were mentioned for surgery. This contains clear information on glomeruli, tubulointerstitium and blood vessels. Those surgeries were not mentioned which contain further nephrosclerosis, have a just medullary area or consisting of less than 4 glomeruli. When the patients of type 2 were diagnosed with NDRD, then physician recommend surgery of kidney significantly. The reason for the occurrence of NDRD was unidentified hematuria, important proteinuria in nephrotic and non-nephrotic and non-nephrotic range, quickly increasing kidney failure and unidentified failure. of the kidney with usual kidney size. If a patient is suffering from diabetes since for a long time, he cannot be operated. These patients were then assessed for DN. By using needle biopsy, tissue kidneys were taken. By means of light microscopy and immune-fluoresce microscopy, these tissues were tested. The steaming of the parts was done by using hematoxylin and eosin, Masson's trichrome periodic. Acid-Schiff and silver meth amine. Congo red stain may also be used when needed. For sake of immunofluorescence study, the examination of tissue was done for human immunoglobulin G G(LGg), IgA, IgM, C3C and g9. Diffuse mesangial sclerosis with or without Kummels tiel-Wilson nodule, microaneurysms, thickening of basement membrane, abrasions like fibrin caps and capsular drops, arteriolar hyaline and linear IgG positively with glomerulus basement membrane were mentioned in the structural standard of abrasions of diabetic glomeruli. Among the above-listed properties when about 3 were found in a tissue biopsy, then DGS was assessed [7]. The grouping and assessment of NDRD were done on the basis of immune-florescence figure kidney abrasions and histological properties.

The patients in the research were placed into 3 groups on the basis of biopsy detection. The patients included in group 1 had just NDRD, in group 2, patients had NDRD along with DGS and in group 3, patients had just DGS. Gender, age, the time period of diabetes, serum creatinine, 24 hours. Urinary protein and systolic and systolic blood pressure were some of the clinical and biochemical factors that were measured at the time of kidney surgery. Moreover, a comparison between clinical and histological detection was made.

By using SPSS for windows, the assessment was done statistically. For qualitative and categorical variables (like gender, numbers of patients) the calculation of Frequency and percentage was done. For continuous variables, data was illustrated as

mean±SD. For comparison between two factors, students were performed while for a number of factor like age, serum, blood pressure, proteinuria. ANOVA was used. On variables like gender and hematuria, Chi-square was performed at kidney surgery. The value that is statistically important was  $p < 0.05$ .

### RESULTS:

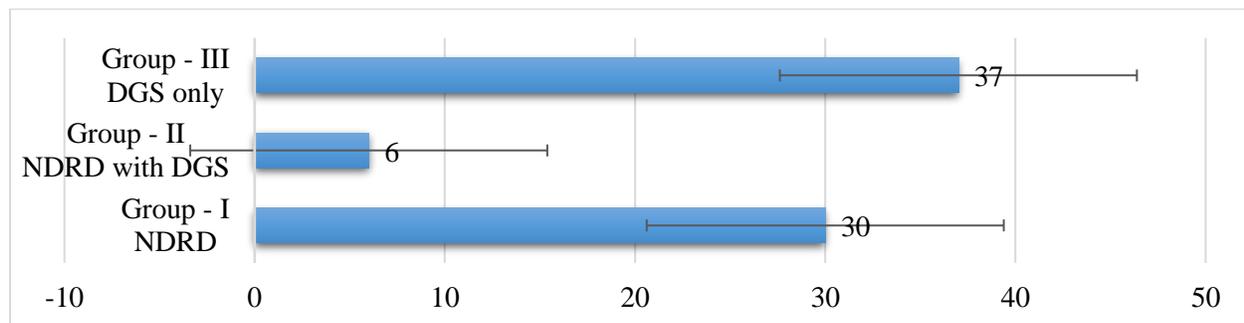
It shows that 30 (41.1%) patients from group 1 had only NDRD out of 73 patients in the study, 06 (8.21%) patients from group 3 had only DGS. While 37(56.7%) from group 3 had only DGS. At the surgery time, it also indicates the basis of patients 46 and 27 were males and females respectively. (M:F 1.7:1). During performance group 1 and 2 tries to have patients with low urges ( $49.26 \pm 9.37$ ) and  $49 \pm 5.72$  years respectively) as compared with group 3 ( $53.62 \pm 6.62$  years). The mean diabetic time period in group 1 was observed  $9.9 \pm 10.42$  years, in the group, time duration was  $7.5 \pm 3.78$  and in group 3  $13.31 \pm 1.71$  years ( $p = 0.05$ ). The most common was local segmental glomeruli sclerosis (FSGS) 22.2%. while post-infectious glomerulonephritis observed was (16.66).

In this study, the clinical and biochemical features of type 2 diabetic patients. The values of Proteinuria in NDRD patients in 1 and 2 groups were ( $3.06 \pm 1.38$ gms/24 hours), and ( $3.32 \pm 0.97$ gms/24 hours) respectively. These values were greater than DGS ( $2.81 \pm 0.9$ GMS/24 HOURS). But these values were most important statistically ( $p = 0.48$ ). The value of serum creatinine in group 1 was  $2.56 \pm 0.95$  mg/dl, group 2 was  $2.63 \pm 0.95$  mg/dl whereas in group 3 the value was  $3.39 \pm 0.92$  mg/dl. This shows that serum creatinine was remarkably increased in group 3 patients.

In patients of NDRD, the occurrence of hematuria was noticed in higher quantity 32.5% in group 1 and 33% in group 2. Whereas, the presence of DGS in group 3 was noticed as 29.6%. but these values are important statistically. In group 3, mean systolic and di-systolic blood pressure was more as compared to group 1 and 2. The values for group 3,2 was  $152 \pm 9$ mmHg,  $94 \pm 6$ mmHg.

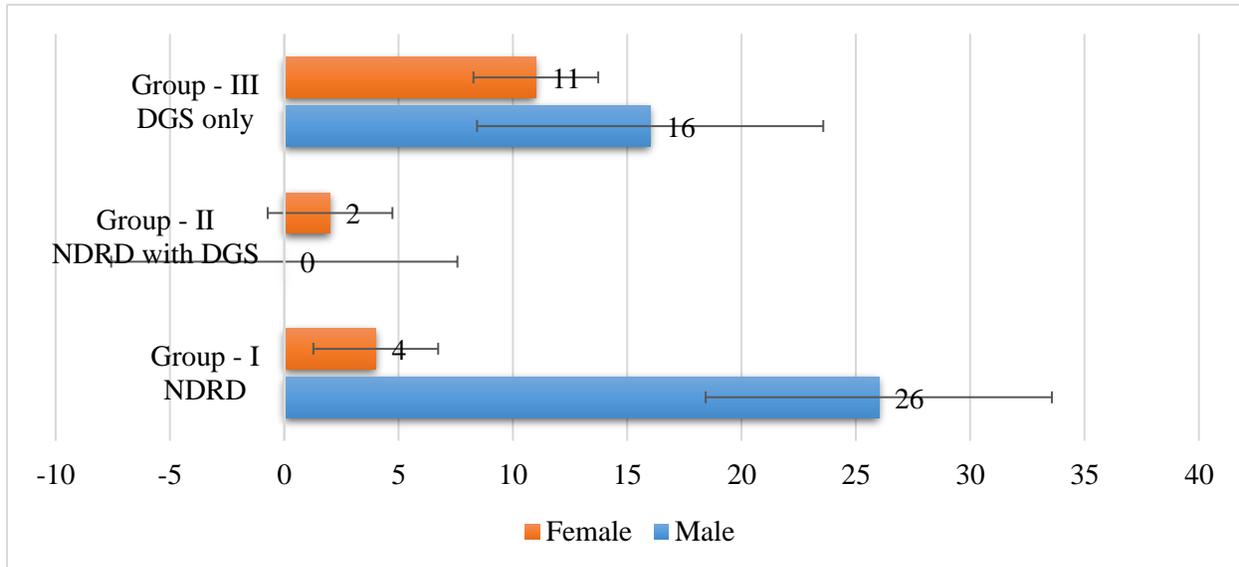
**Table – I: Patient's Number**

Characteristics	Patient's Number
Group - I NDRD	30
Group - II NDRD with DGS	6
Group - III DGS only	37

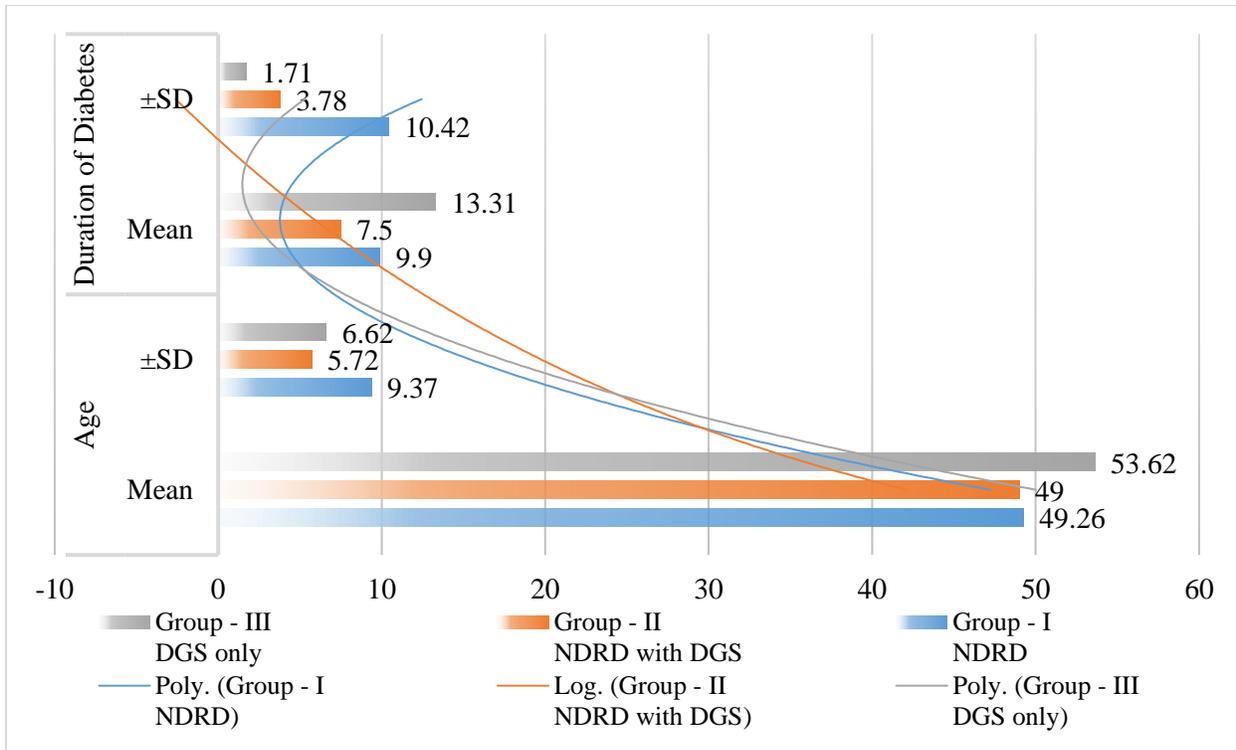


**Table – II:** Gender Distribution

Characteristics	Male	Female
Group - I NDRD	26	4
Group - II NDRD with DGS	4	2
Group - III DGS only	16	11
P-Value	0.94	

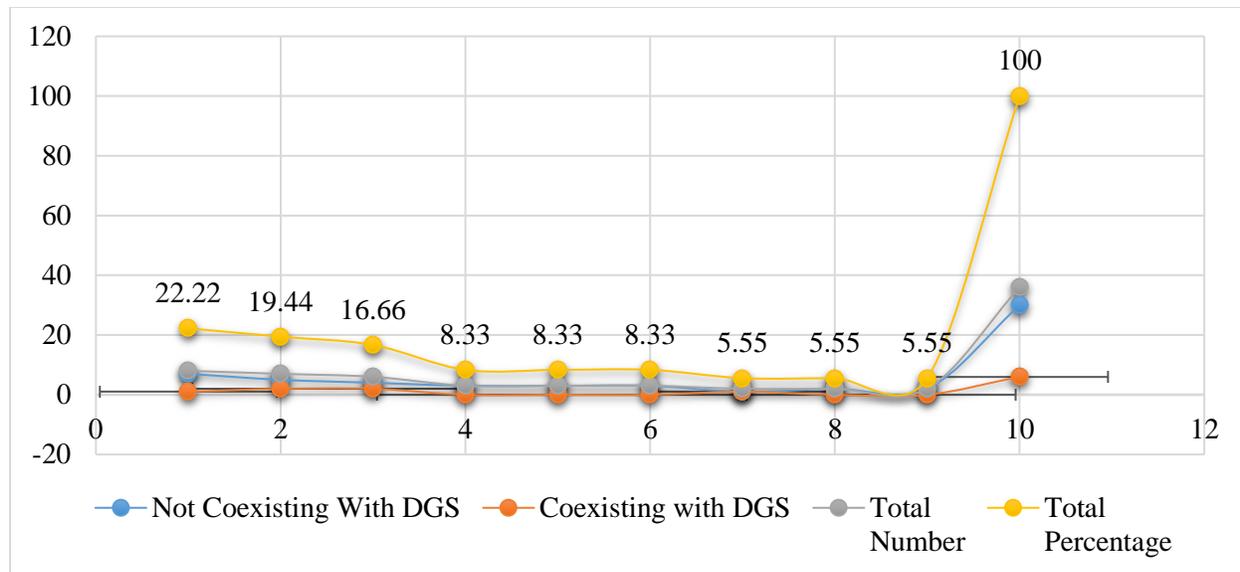
**Table – III:** Age and Diabetes Duration

Characteristics	Age		Duration of Diabetes	
	Mean	±SD	Mean	±SD
Group - I NDRD	49.26	9.37	9.9	10.42
Group - II NDRD with DGS	49	5.72	7.5	3.78
Group - III DGS only	53.62	6.62	13.31	1.71
P-Value	0.062		0.051	



**Table – IV:** Frequency of non-Diabetic Renal Disease

Non-diabetic Renal Disease Types	Not Coexisting With DGS	Coexisting with DGS	Total Number	Total Percentage
FSGS	7	1	8	22.22
TIN	5	2	7	19.44
Post infectious GN	4	2	6	16.66
MCD	3	0	3	8.33
Amyloidosis	3	0	3	8.33
MCD	3	0	3	8.33
IgA Nephropathy	1	1	2	5.55
CrGN	2	0	2	5.55
HTN	2	0	2	5.55
Total	30	6	36	100



### DISCUSSION:

To the final stage of kidney disorder, DN proceeded. It is complexity in type 2 diabetic patients which is long lasting. It is indicated by the physician in the following years that non-diabetic disorder that is curable are found in patients of type 2 diabetes [2,8]. Hence the widespread and type of NDRD in type 2 diabetic patients were noticed in the study. These patient's experiences surgery of kidney due to the damaged working of the kidney. Total 43 patients were included in this study. These patients are classified into 3 groups of kidney abrasion. This classification was based on structural properties and immunofluorescence enquires. The frequency of DGS group 2 and 3 was noticed 58.9% of patients whereas NDRD frequency is observed 49.31% group 1 and 3.

For the last decades, various studies were organized which noticed 12% to 8% the range of widespread of disease DGS do not associate or coexist with percentage range so, estimation of kidney frequency of NDRD in type 2 diabetic patients is very hard. These changes are not put details. It is noticed by the analysis of application publications that probably different factors cause the changes. Rules of kidney surgery in various institutions, the number of people understudies and limited size of some factor that interfere with changes. When the study was related to the ethnically comparable community that is an association to similar geographic region evident is provided by the important dissimilarities. The study organized prior are not able to support this question. Because morphological information does not assist these studies. 9% to 18% was the actual frequency of only NDRD or along with DGS. This frequency was

the results of series made in Denmark and Finland when structural information was present while the frequency of NDRD in type 2 diabetes patients [12] was 81% as indicated by the study organized in India. This problem can be solved somewhat by making rules in different institutions related to kidney surgery. Due to atypical and renal signs, NDRD was pointed out and then surgeries of kidneys were carried out in centres which follow the limited rules. However, there are some centres which do not follow limited rules. In those centres on patients of type 2 diabetes with proteinuria  $>0.5\text{mg/day}$  only or connected with hematuria, or damaged working of kidney were carried out. In those type 2 diabetes patients who are pointed with NDRD of unnamed hematuria clinically important proteinuria in the nephrotic and non-nephrotic area, swiftly increasing kidney failure or unnamed failure of the kidney with usual size of the kidney are done by the nephrologists. In our institution, the present practice of limited rules is followed up by nephrologists. Actually, in those studies that limited policy [13] only NDRD excluding DGS are spread. In the current study, the similar outcomes are observed. In greater numbers of studies that follow limited rules, only DGS is observed or along with NDRD is noticed. The important thing is to diagnose NDRD in type diabetic patients for clear therapeutic and prognostic suggestions [8]. In spite of the fact that the widespread outcomes of kidney disorder in a diabetic are affected by rules in various institutions.

The kind of abrasion and its occurrence duration in the time of diabetes mellitus effect the NDRD prediction. The result of NDRD along with DGS are remarkably digestion. But without DGS the results

are fair. These results are shown proved by publication. Moreover, along with nephropathy, the result possibly does not change of patients with DGS. The diagnosis of NDRD excluding DGS is much significant, by operation this deletion may be affected remarkably. Occasionally it is believed that to particular treatment [14], the things that are effective post infectious glomerulonephritis MCD and possibly FSGS membranous glomerulonephritis (MGS) and some that of IgA nephropathy. The report has been provided grading enforced cancellation of acute proliferative glomerulonephritis [5]. The most usual NDRD in our study was FSGS. FSGS was proceeded by TIN. The most usual abrasion in type 2 diabetic patients was observed to be FSGS (21%) according to an identical study organized in the United States. Another local study was conducted for non-diabetic patients. In the study, the most usual NDRD was AIN (32%). AIN was followed by diffuse proliferative glomerulonephritis (17%) [15].

In type 2 diabetic patient's occurrence or effectively of DN is not identified exactly by the occurrence of proteinuria. There is a chance of occurrence of NDRD [16] if remarkable proteinuria is observed prior to time which is expected in these patients. Gianna et al [13] noticed significant proteinuria in all of the 3 groups of type 2 diabetic patients as indicated by the study. This study can be placed in comparison to our study. It is indicated that disordered advancement and poor results and protein like tubulotoxic are due to proteinuria of more than 2gm/day. Both in type 2 diabetic patients with only NDRD or along with DGS [1], THIS high proteinuria can be applied.

The possibility of NDRD [18] should be increased by the decline in kidney working diabetes or at late step. In the current study, it is observed that in NDRD patients, the working of the kidney is reduced suddenly. When exact time period diabetes is not assessed, then possibly functions of the kidney is declined. Actually, in patients with long-term diabetes, acute changes were noticed. These changes were proceeding with organizing fibro epithelial crescents in the glomeruli. It is observed that due to the forceful clinical course, [19] crescent in DGS occurred. Hence. It for detection of NDRD, unnamed or swift decline in kidney working in worse fool. Both DN and NDRD are predicted on the basic of urinary abnormality. This abnormality includes hematuria without infection of urinary tract. NDRD [20] is identified if, in the beginning of type 2 diabetic patients, this abnormality is deflected. It is suggested that likely for is suggested that likely for the occurrence of NDRD, the assessment was done

regarding red blood cells in the urine. It is also observed in our study that in both DGS and NDRD, hematuria was present.

In patients of only DGS or along with NDRD, it was a remarkable increase in systolic and di-systolic blood pressure. Although, they were higher in diabetic type 2 patients in our study. There is a reduction infiltration rate of glomeruli and it may lead the disorder of kidney to final stage [21] if blood pressure is increased along with acute proteinuria. Due to this, the functioning of the kidney in DGS is affected along with remarkably greater serum creatinine and proteinuria. Hence, patients of DGS or NDRD with increased blood pressure should be treated on the various basis. This is necessary for avoidance or reduction of advancement of kidney abrasion [22].

49.31% was the frequency of NDRD as illustrated in this study. This frequency was found in type 2 diabetic patients. On clinical and laboratory basis, it is hard to diagnose pathological abrasion of the kidney in type 2 diabetic patients, as revealed by the study. These patients were with the damaged working of kidney like hematuria, proteinuria in nephrotic and non-nephrotic range and swiftly increasing failure of the kidney. In patients of type 2 diabetes, high frequency of NDRD may be present alone or along with the DGS. Clear clinical association with these abrasions of the kidney are estimated. These abrasions are possibly affected by the method of treatment. In short, the aim of our study is to assess the kidney surgery in type 2 diabetic patients. These patients are with the impaired working of the kidney. Through this, patients can be detected and controlled.

### CONCLUSION:

The study suggests that in type 2 diabetic patients, a high quantity of NDRD is present. These patients encounter surgery of kidney due to due to the damaged working of the kidney. The study also highlights the importance of surgery in patients experiencing the renal failure so that control disease could be adapted accordingly.

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