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Research Article

Determination of Chronic Kidney Disease Severity in Patients with Diabetic Nephropathy: A KDIGO-Based Cross-Sectional Study

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ABSTRACT

Background: Diabetes mellitus is a major global health problem and one of the leading causes of Chronic Kidney Disease (CKD). Diabetic nephropathy is a serious microvascular complication characterized by persistent albuminuria, progressive decline in Glomerular Filtration Rate (GFR), and increased risk of end-stage renal disease. Early identification of disease severity using Kidney Disease: Improving Global Outcomes (KDIGO) classification is important for timely intervention and prevention of disease progression. **Aim:** To evaluate the impact of diabetes mellitus on the progression of diabetic nephropathy using KDIGO classification. **Materials and Methods:** Conducting a cross-sectional observational study CKD severity was assessed using KDIGO classification based on estimated Glomerular Filtration Rate (eGFR) and albuminuria categories. Statistical analysis was performed using the χ^2 test. **Results:** Among 200 patients, Severe CKD (G4-G5) was observed in 87.5% of patients and severe Albuminuria (A3) in 89%. According to KDIGO risk classification, 95.5% of patients were categorized as very high risk. Significant associations were found between CKD severity and HbA_{1C} levels and blood pressure ($p<0.001$). **Conclusion:** The study demonstrates a high burden of advanced CKD among diabetic nephropathy patients. Poor glycemic control and uncontrolled hypertension were significantly associated with CKD progression, highlighting the importance of early screening and effective management of diabetes and blood pressure.

Keywords: Diabetes mellitus, Diabetic nephropathy, Chronic kidney disease, KDIGO classification, Glycemic control, Hypertension.

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INTRODUCTION

Diabetes mellitus, most commonly abbreviated as diabetes mellitus, is a generic term for a wide array of endocrine conditions defined by constantly induced raised concentrations of glucose in the blood. In normal physiology, the endo-hormone insulin, which is secreted in response to food intake by the pancreatic beta cells, is responsible for glucose transport into the peripheral tissues, and in this way, fueling the metabolism of the cell. In form of individuals afflicted with diabetes tensions or insufficiency of insulin synthesis, secretion, or action leads to a failure of glucose to be adequately cleared from the circulation, thus engendering hyperglycemia.

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In 2021 Saw 1.6 million deaths which can be attributed directly to diabetes, and roughly half of them happen in people younger than 70 years of age. Furthermore, diabetes was considered to account for approximately 530,000 deaths secondary to renal failure while hyperglycemia was responsible for almost 11% of deaths due to cardiovascular related causes (Wikipedia Contributors, 2025; World Health Organization, 2025).

Diabetic Nephropathy

Diabetic nephropathy is a serious microvascular complication resulting from prolonged hyperglycemia and associated metabolic disturbances (Alicic *et al.*, 2017; American Diabetes Association, 2014; Forbes and Cooper, 2013; Gnudi *et al.*, 2016; Heerspink *et al.*, 2020; Reutens and Atkins, 2011; Thomas *et al.*, 2015; Tuttle *et al.*, 2014). It remains a leading cause of chronic kidney disease and end-stage renal failure globally. The disease is characterized clinically by persistent albuminuria, declining Glomerular Filtration Rate (GFR), and hypertension, and pathologically by glomerular basement membrane thickening, mesangial expansion, nodular sclerosis, and tubulointerstitial fibrosis.

Diabetic Nephropathy: Pathophysiology

The clinical Diabetic Nephropathy (DN) differ between diabetes types. Patients with (T2DM) may present with albuminuria at the time of diagnosis, whereas diabetic nephropathy in (T1DM) typically develops after 15-20 years of disease duration. Overall, approximately 30% of individuals with T1DM and nearly 40% of those with T2DM eventually develop diabetic nephropathy, partly due to delayed recognition of disease onset in T2DM.

The progression of DN closely parallels changes in albumin excretion, advancing from normoalbuminuric to microalbuminuria and ultimately macroalbuminuria. Importantly, early and aggressive to slow or partially reverse this progression (Clos-Garcia *et al*., 2022; Młynarska *et al*., 2024; Satirapoj and Adler, 2014).

Clinical Significance of Diabetic Nephropathy Progression

DN is among the most severe and clinically important complications of diabetes mellitus and represents a leading cause of Chronic Kidney Disease (CKD) and ESRD across the globe. The progressive course of DN has extensive clinical consequences that extend beyond renal impairment, affecting cardiovascular health, mortality rates, patient quality of life, and overall healthcare costs. Gaining insight into the clinical significance of DN progression is crucial for facilitating early therapeutic intervention, effective risk stratification, and long-term disease control (American Diabetes Association, 2022).

Impact on Renal Function and Disease Burden

Patients reaching advanced stages of DN frequently require dialysis or kidney transplantation. Diabetic nephropathy is the predominant cause of ESRD worldwide, accounting for approximately 30-50% of individuals initiating dialysis, irrespective of geographic region. The escalating prevalence of diabetes, particularly type 2 diabetes mellitus, has led to a corresponding rise in DN-associated ESRD cases, thereby placing a considerable strain on global healthcare systems ("USRDS annual data report", 2021).

MATERIALS AND METHODS

The cross-sectional observational study was conducted for 6 months in Mamatha general hospital, Khammam. The sample was selected by taking confidence interval of 5% and a confidence level of 95%. The sample size of our study was 200 Patients. Data was collected by using specially designed data collection form. The chronic kidney disease severity was assessed in Diabetic patients using a KDIGO based classification. The protocol was reviewed and approved by Institutional Ethics Committee before the commencement of study.

The statistical analysis was carried out by using Microsoft® Office (MS® Word, MS® Excel, and GraphPad Prism software). A χ^2 test was used for data analysis based on observations of random set of variables.

RESULTS

Age

Age as a variable, we have categorized the age into 4 groups and contains the age group of 20-40, 41-60, 61-80 and 81-100. Among 200 cases 17 (8.5%) patients had ages between 20 and 40, 107 (53.50%) patients had ages between 41 and 60, and 72 (36%) patients had ages between 61 and 80 and 4 (2%) patients had ages between 81 and 100 and the outcomes are described in Table 1.

Gender

Gender as a factor, among 200cases of Diabetic Nephropathy patients 153 (76.5%) cases is males and 47 (23.5%) cases are females and the outcomes are described in Table 2.

Duration of Diabetes

Duration of diabetes as a factor among 200 patients the age <5 years are 9 (4.5%) duration 6-10 years are 15 (7.5%), duration 11-15 years are 49 (24.5%), duration 16-20 years are 70 (35%) and age >20 years are 57 (28.5%) and the outcomes are described in Table 3.

Distribution of HbA_{1C} Levels

HbA_{1C} levels as a variable, among 200 patients, 39 (19.5%) had good glycemic control (<7%), 96 (48%) had moderate control (7-8%), and 65 (32.5%) had poor control (>8%) and the outcomes are described in Table 4.

Distribution of Blood Pressure

Blood pressure as a variable. Among 200 patients, 4 (2%) had normal BP (<120 and <80 mM of mercury), 26 (13%) had elevated (120-139/80-89 mM of mercury), 65 (32.5%) had Stage 1 HTN (140-159/90-99 mM of mercury), and 105 (52.5%) had Stage 2 HTN (≥160/100 millimeter of mercury). The outcomes are described in Table 5.

KDIGO CLASSIFICATION RESULTS

GFR Based Severity Category (G-Stage)

GFR as a factor among 200 cases of Diabetic Nephropathy patients Categorized as G1 as normal 1 (0.5%), G2 as Mildly decreased 3 (1.5%), G3a as Mild to moderate 5 (2.5%), G3b as Moderate to severe 16 (8%), G4 as Severe 42 (21.0%) and G5 as Kidney Failure 133 (66.5%) and the outcomes are described in Table 6.

Albuminuria Category (A-Stage)

Albuminuria as a factor among 200 cases of Diabetic Nephropathy patients was categorized as A1 (<30 mg/g) Normal 0 (0%), A2

(30-300 mg/g) Moderate 22 (11.0%), and A3 (>300 mg/g) Severe 178 (89.0%). Most patients were found in A3 stage indicating severe albuminuria, while none of the patients were in A1 stage. The outcomes are described in Table 7.

Combined KDIGO GFR Category (G-Stage) and Albuminuria Category (A-Stage)

Combined assessment of GFR and albuminuria among 200 cases of Diabetic Nephropathy patients showed that no patients were present in A1 category across all GFR stages. In G1 stage, 1 (0.5%) patient was found in A3 category. In G2 stage, 3 (1.5%) patients were in A3 category. In G3a stage, 1 (0.5%) patient was in A2 category and 4 (2.0%) patients were in A3 category. In G3b stage, all 16 (8.0%) patients were in A3 category. In G4 stage, all 42 (21.0%) patients belonged to A3 category. In G5 stage, 21 (10.5%) patients were in A2 category and 112 (56.0%) patients were in A3 category and the outcomes are described in Table 8.

Combined KDIGO Risk Categorization

According to KDIGO combined classification (GFR+Albuminuria):

Very High-Risk Categorization

According to KDIGO combined classification (GFR + Albuminuria), 9 patients (4.5%) were categorized as High Risk and 191 patients (95.5%) were categorized as Very High Risk. No patients were found in the Low or Moderate Risk categories. Most patients were therefore classified under the Very high-risk group and the outcomes are described in Table 9.

Correlation Between Age and CKD Severity

Age versus CKD severity as factors have been categorized into age groups (20-40, 41-60, 61-80, 81-100 years) cross-tabulated with CKD stages (Mild G1-G2, Moderate G3a-G3b, Severe G4-G5). Among 200 cases, the 41-60 years group (107, 53.5%) showed predominant severe CKD (96 cases), while younger groups had better distribution and the outcomes are described (Figure 1, Table 10).

Correlation Between Gender and CKD Severity

Gender versus CKD severity as factors have been categorized into Male and Female cross-tabulated with CKD stages (Mild G1-G2, Moderate G3a-G3b, Severe G4-G5). Among 200 cases of Diabetic Nephropathy patients, males (153, 76.5%) showed predominant severe CKD (134 cases), while females (47, 23.5%) had relatively better distribution with 41 severe cases and the outcomes are described (Figure 2, Table 11).

Correlation Between Duration of Diabetes and Severity of CKD

Duration of Diabetes correlated with CKD severity, among 200 cases their duration of diabetes was categorized into 5 groups and cases falls in ≤5 years of duration of diabetes are 9 (4.5%), 6-10 years 15 (7.5%), 11-15 years 49 (24.5%), 16-20 years 70 (35.0%), and >20 years 57 (28.5%). Most patients were found in 16-20 years group (35.0%) with predominant advanced CKD, while shorter duration groups (≤10 years) showed relatively better CKD distribution. The outcomes are described (Figure 3, Table 12).

Correlation Between BP Stages and Diabetic Nephropathy Severity

Blood pressure versus CKD severity as factors have been categorized into 4bp groups (Normal, Elevated, Stage 1 HTN, Stage 2 HTN) cross-tabulated with CKD stages (Mild G1-G2, Moderate G3a-G3b, Severe G4-G5). Among 200 cases of Diabetic Nephropathy patients, Stage 2 HTN group (105, 52.5%) showed predominant severe CKD (80 cases), with no early CKD cases in lower BP categories. The outcomes are described (Figure 4, Table 13).

Correlation Between HbA_{1C} and Diabetic Nephropathy Severity

HbA_{1C} levels were categorized into 3 groups: Good Control (<7%), Moderate Control (7-8%), and Poor Control (>8%), and were cross-tabulated with CKD severity stages (Mild: G1-G2, Moderate: G3a-G3b, Severe: G4-G5) as per kidney disease: Improving Global Outcomes classification. Among the 200 patients studied, the majority belonged to the moderate glycemic control group (96 patients, 48%). Notably, all patients in both the good control group (39 patients, 19.5%) and the moderate control group (96 patients, 48%) were found to have severe CKD (G4-G5). In the poor control group (65 patients, 32.5%), 40 patients had severe CKD, while 21 had moderate CKD and 4 had mild CKD. Overall, severe CKD was predominant across all HbA_{1C} categories (175 patients, 87.5%), indicating a high burden of advanced renal disease in the study population and the outcomes are described (Figure 5, Table 14).

DISCUSSION

In this cross-sectional investigation, 200 individuals with diabetic nephropathy were assessed for the severity of Chronic Renal Failure (CKD) utilizing the kidney disease: recommendations for Improved Global Outcomes (KDIGO) based on albuminuria staging and an eGFR estimate ("Kidney Disease: Improving global

Table 1: Age distribution in patients.

Age	No.	%
20-40	17	8.5
41-60	107	53.5
61-80	72	36
81-100	4	2
Total	200	100%

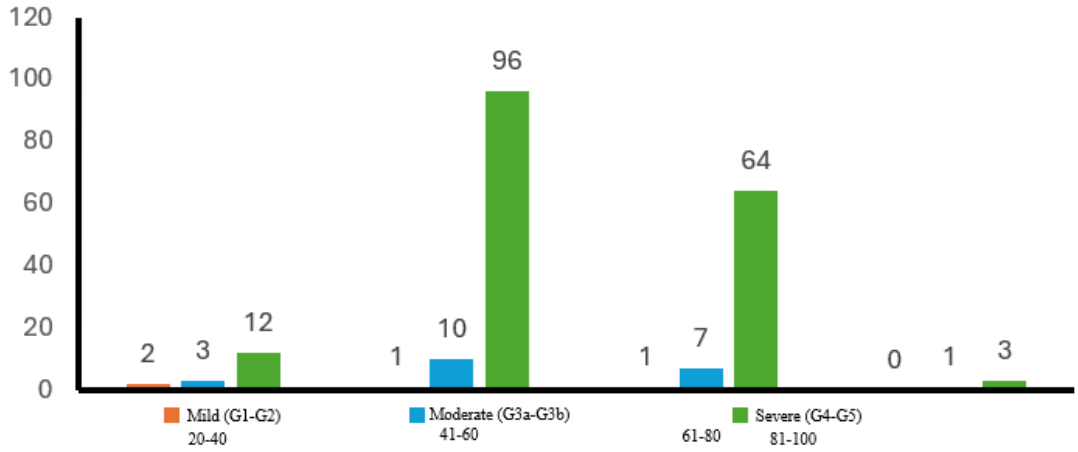

Figure 1: Correlation between age and Chronic Kidney Disease (CKD) severity.

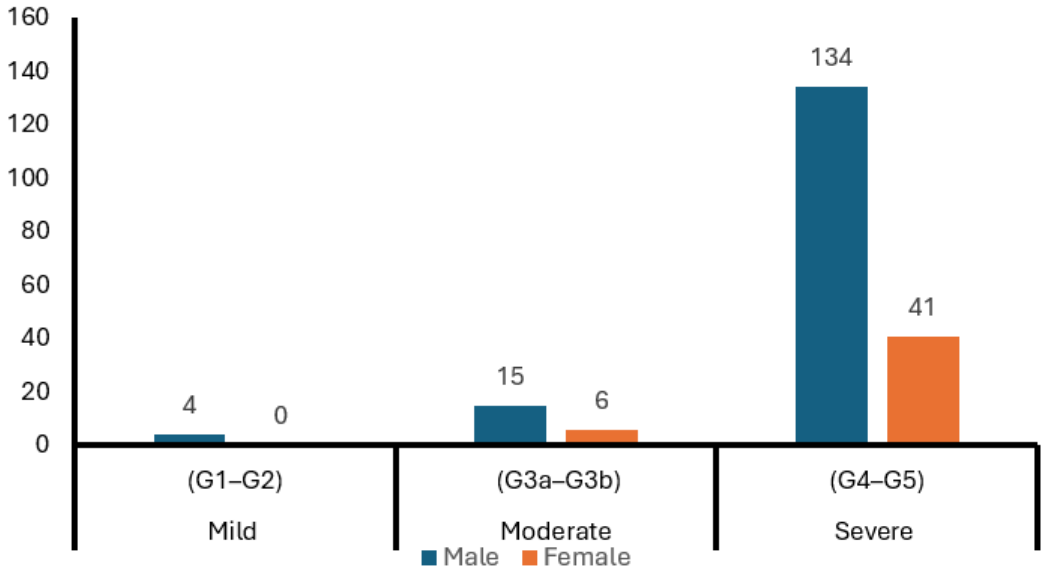

Figure 2: Correlation between gender and Chronic Kidney Disease (CKD) severity.

outcomes (KDIGO). *Clinical practice guideline for the evaluation and management of chronic kidney disease*", 2013). The current study's results show that this group had a noticeably high burden of modern CKD. 87.5% of patients had severe CKD (G4-G5), and 95.5% fell into the Very high-risk category based on KDIGO combined risk classification.

As the primary cause of end-stage kidney disease, or worldwide, diabetic kidney disease has a substantial impact on morbidity, mortality, and the cost of healthcare. However, compared to many community-based studies, our study's percentage of patients with late stages of CKD is significantly greater. This disparity probably results from referral bias seen in tertiary care hospital settings, late presentation, and inadequate early screening procedures.

Comparison with Global CKD Prevalence in Diabetes

Depending on the research population and diagnostic criteria, the worldwide rate of CKD among individuals who have type 2 diabetes varies from 20 to 50%. A pooling global CKD prevalence of 13.4% was found in the general population, with a considerably higher incidence among diabetics (Hill *et al.*, 2016). In a similar vein (Zhang *et al.*, 2021), found that 40-45% of Chinese people with diabetes had CKD. In contrast to these results, the bulk of our sample is grouped in G4 and G5 stages, indicating a disproportionately advanced condition.

A wider range of CKD is reported by community-based registries like National Health and Nutrition Examination Survey (Centers for Disease Control and Prevention), with a higher percentage of patients in the early stages (G1-G3). By contrast, our analysis

Table 2: Gender Distribution in patients.

Gender	No.	%
Male	153	76.5
Female	47	23.5
Total	200	100%

revealed low representation in the early stages of CKD, indicating a lack of programs for detection and delayed referral.

Additionally, 89% of patients in our group were classified as A3 due to the high prevalence of albuminuria (Fox *et al.*, 2012). shown that people with diabetes who have albuminuria are far more likely to die and develop CKD. Thus, the clustering of individuals in the Very Hazardous KDIGO group can be explained by the prevalence of extreme albuminuria in our analysis.

KDIGO Risk Stratification and Clinical Relevance

The KDIGO classification combines albuminuria and eGFR to offer predictive data on the course of CKD and cardiovascular consequences. When compared to eGFR evaluation alone, this combination staging technique has been demonstrated to give better risk prediction.

According to our study, no patients were classified as Low or Moderate Risk, 191 patients (95.5%) were classified as Very High Risk, and 9 patients (4.5%) were classed as High Risk.

Compared to health care cohorts, wherein early risk factors are more prevalent, this distribution is significantly different. Our research's high percentage of individuals in higher-risk stages highlights the study population's poor sugar and blood-pressure management, delayed diagnosis, and insufficient early screening.

Age and CKD Severity

Despite the fact that 53.5% of the participants were in the 41-60 age range, statistical analysis revealed no significant correlation between the age range and the severity of CKD ($p>0.05$). Although middle-aged and older populations had higher rates of severe CKD, this relationship was not statistically significant. The prevalence of severe CKD in almost every age group may help to explain this.

Gender Distribution and CKD Severity

In this study, there was a 76.5% male preponderance. However, there was no statistically significant correlation ($p>0.05$) between gender and the severity of CKD. Our results did not show race as an independent predictor of CKD stage in our study population,

Table 3: Duration of diabetes mellitus in diabetic nephropathy patients.

Duration of diabetes	No.	%
≤5 years	9	4.5
6-10 years	15	7.5
11-15 years	49	24.5
16-20 years	70	35
>20 years	57	28.5
Total	200	100

Table 4: Distribution of HbA_{1C} levels.

HbA_{1C} category	HbA_{1C} (%)	No. of Patients	%
Good control	<7%	39	19.5
Moderate control	7-8%	96	48
Poor control	>8%	65	32.5
Total		200	100%

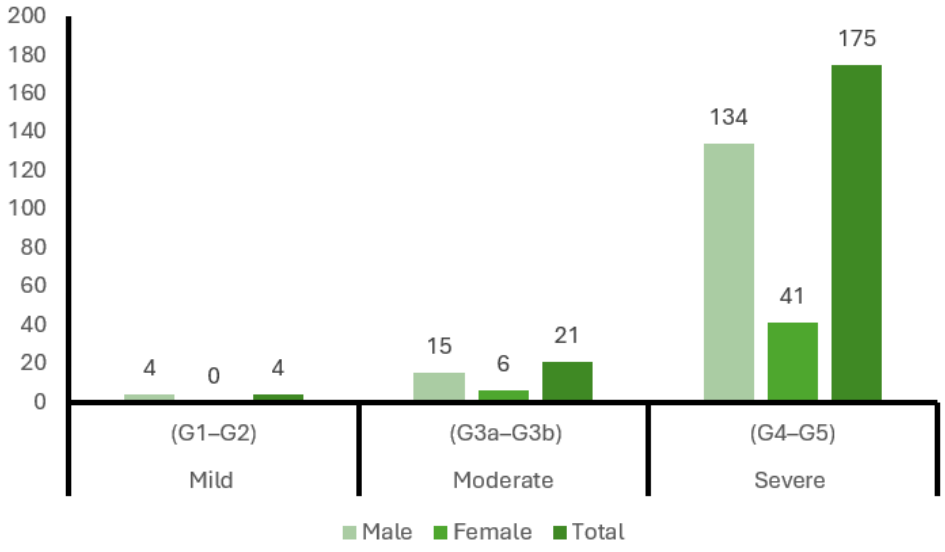

Figure 3: Correlation between duration of Diabetes and severity of Chronic Kidney Disease (CKD).

Table 5: Distribution of blood pressure.

BP category	Systolic/diastolic (mmHg)	No. of Patients	%
Normal	<120 and <80	4	2
Elevated/pre-HTN	120-129 or <80	26	13
Stage 1 HTN	130-139 or 80-89	65	32.5
Stage 2 HTN	≥140 or ≥90	105	52.5
Total		200	100%

Table 6: KDIGO glomerular filtration rate (GFR) based severity categorization.

CKD category	eGFR (ml/min)	No.	%
G1-normal	≥90	1	0.5
G2-mildly decreased	60-89	3	1.5
G3a-mild to moderate	45-59	5	2.5
G3b-moderate to severe	30-44	16	8.0
G4-severe	15-29	42	21.0
G5-kidney failure	<15	133	66.5
Total		200	100

Abbreviations: CKD: Chronic Kidney Disease; eGFR: Estimated Glomerular Filtration Rate.

Table 7: Albuminuria category (A-stage).

A stage		Category	No.	%
A1	<30 mg/g	Normal	0	0
A2	30-300 mg/g	moderate	22	11
A3	>300 mg/g	severe	178	89
Total			200	100

despite the fact that numerous epidemiological studies suggest quicker progression of CKD in males, potentially due to hormonal impacts and lifestyle variables.

Duration of Diabetes and CKD Severity

Although statistically significant was not reached ($p>0.05$), a longer course of diabetes in the current research demonstrated a tendency toward correlation with CKD severity. In line with previous research, patients with a disease duration longer than 15 years showed a higher prevalence of severe CKD.

According to Afkarian *et al.* (2013), persons with diabetes who have had their condition for a longer period are much more likely to acquire CKD. The data that was collected supports the idea that long-term hyperglycemia exposure affects renal outcomes, even if statistically significant differences was not attained in our investigation.

Glycemic Control (HbA_{1C}) and CKD Severity

According to our study's HbA_{1C} distribution, 48% of patients had intermediate control of their blood sugar (7-8%), 32.5% had poor control (>8%), and 19.5% had excellent control (<7%). The HbA_{1C} category and the severity of CKD were shown to be statistically significantly correlated ($p<0.001$).

Patients with poor glycemic control were more likely to be in moderate and mild stages of CKD than those in good control groups, despite the fact that severe Nephritis dominated across all HbA_{1C} categories. This result implies that, especially in the early stages of the illness, HbA_{1C} is still a significant predictor of renal development.

Intense glycemic management lowers microvascular consequences, such as nephropathy, as the UKPDS (UK Prospective Diabetes Study Group, 1998) experiment showed. However, even glycemic control might not be enough to undo structural damage if CKD reaches late stages. Therefore, a single HbA_{1C} result is probably less significant than accumulating glycemic exposure over time.

Hypertension and CKD Progression

In this study, Stage 2 hypertension accounted for 52.5% of patients, indicating a significant prevalence of hypertension. Blood-pressure category and CKD severity were shown to be extremely significantly correlated ($p<0.001$).

By raising intraglomerular pressure and encouraging sclerosis, hypertension hastens glomerular damage. The risk of CKD development is significantly increased by the complementary relationship between diabetes and hypertension (Bakris *et al.*,

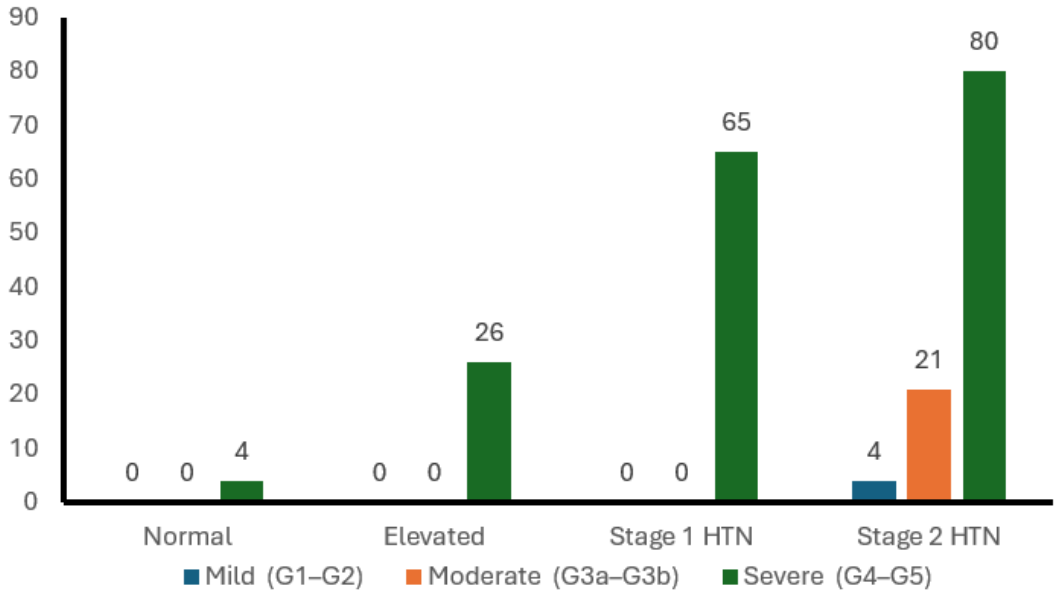

Figure 4: Correlation between BP stages and Diabetic Nephropathy Severity.

Table 8: Combined distribution of GFR and albuminuria categories.

GFR stage	A1(<30)	A2 (30-300)	A3 (>300)	Total
G1	-	-	1	1
G2	-	-	3	3
G3a	-	1	4	5
G3b	-	-	16	16
G4	-	-	42	42
G5	-	21	112	133
Total	-	22	178	200

Abbreviations: GFR: Glomerular Filtration Rate.

Table 9: Very high-risk categorization.

Risk category	Criteria	No.	%
Low risk	G1-G2 + A1	0	0
Moderate risk	G1-G2 + A2 / G3a + A1	0	0
High risk	G1-G3a + A3/G3a-G3b + A2	9	4.5
Very high risk	G3b + A3/G4-G5 (any A stage)	191	95.5
Total		200	100%

Table 10: Correlation between age and CKD severity.

Age group	Mild (G1-G2)	Moderate (G3a-G3b)	Severe (G4-G5)	Total	%	χ^2 test *p*-value
20-40	2	3	12	17	8.5	p>0.05
41-60	1	10	96	107	53.5	
61-80	1	7	64	72	36	
81-100	0	1	3	4	2	
Total	4	21	175	200	100	

2000). showed that albuminuria progression and eGFR decrease are considerably slowed by efficient blood-pressure management. The significance of vigorous blood pressure control in individuals with diabetic nephropathy is clearly supported by our findings.

Albuminuria as a Warning Marker

A recognized indicator of glomerular damage and an indicator of cardiovascular and renal outcomes is albuminuria. This cohort's high A3 albuminuria prevalence (89%) suggests significant structural renal impairment.

Even in individuals with maintained eGFR, Matsushita *et al.* (2010) showed that rising albuminuria is an independent predictor of death. Thus, early albuminuria identification and monitoring continue to be crucial aspects of managing chronic kidney disease.

This cross-sectional investigation reveals that individuals having diabetes who live in our tertiary care environment have a startlingly a great deal of severe chronic kidney disease. With 95.5% of patients falling under the Very High Risk KDIGO group and 87.5% classed as Severe CKD (G4-G5), the great majority of patients had late stages of renal dysfunction. These results unmistakably show tardy identification and referral, highlighting serious deficiencies in early testing and preventive treatment.

The severity of CKD was shown to be substantially correlated with both glycemic state and hypertension, according to

Table 11: Correlation between gender and Chronic Kidney Disease (CKD) severity.

Gender	Mild (G1-G2)	Moderate (G3a-G3b)	Severe (G4-G5)	Total	%	χ^2 test *p*-value
Male	4	15	134	153	76.5	p>0.05
Female	0	6	41	47	23.5	
Total	4	21	175	200	100%	

Table 12: Correlation between duration of Diabetes and severity of CKD.

Duration of diabetes	Mild (G1-G2)	Moderate (G3a-G3b)	Severe (G4-G5)	Total	%	χ^2 test *p*-value
≤5 years	2	1	6	9	4.5	p>0.05
6-10 years	1	2	12	15	7.5	
11-15 years	1	4	44	49	24.5	
16-20 years	0	7	63	70	35	
>20 years	0	7	50	57	28.5	
Total	4	21	175	200	100	

Table 13: Correlation between BP stages and Diabetic Nephropathy Severity.

BP category	Mild (G1-G2)	Moderate (G3a-G3b)	Severe (G4-G5)	Total	%	χ^2 test *p*-value
Normal	0	0	4	4	2	p<0.001
Elevated	0	0	26	26	13	
Stage 1 HTN	0	0	65	65	32.5	
Stage 2 HTN	4	21	80	105	52.5	
Total	4	21	175	200	100	

Table 14: Correlation between HbA_{1C} and diabetic nephropathy severity.

HbA_{1C} category	Mild (G1-G2)	Moderate (G3a-G3b)	Severe (G4-G5)	Total	%	χ^2 test *p*-value
Good control	0	0	39	39	19.5	p<0.001
Moderate control	0	0	96	96	48	
Poor control	4	21	40	65	32.5	
Total	4	21	175	200	100	

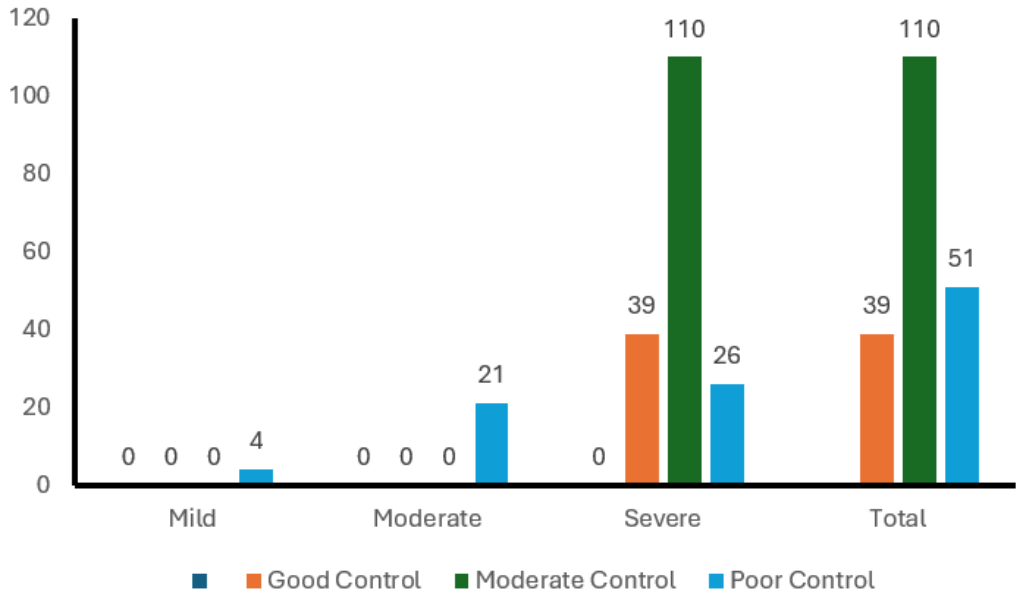

Figure 5: Correlation between HbA_{1C} and diabetic nephropathy severity.

statistical analysis. A highly significant association ($p<0.001$) was found between blood pressure stage and the severity of the illness, highlighting the crucial role that vigorous blood pressure control plays in halting the advancement of renal disease. The significance of maintaining glycemic control in diabetic individuals was further reinforced by the HbA_{1C} category's high statistical correlation with CKD severity ($p<0.001$).

Despite a trend toward correlation between the length of diabetes and the severity of CKD, statistical significance was not attained. In this sample, age and gender did not substantially correlate with CKD stage. These results imply that renal outcomes are more significantly influenced by modifiable risk factors than by nonmodifiable demographic characteristics, especially hypertension and glycemic management.

CONCLUSION

This study's high prevalence of advanced GFR stages and A3 albuminuria indicates significant structural renal impairment at the moment of presentation. This highlights the necessity of early detection techniques, regular eGFR and albuminuria monitoring for all diabetes patients, and prompt administration of renoprotective medications.

In conclusion, late-stage presentation and a high-risk KDIGO categorization are characteristics of diabetic nephropathy in our community. Reducing the course of end-stage renal disease and related cardiovascular consequences needs to be strengthened primary care screening, improving blood pressure and glucose control, and putting KDIGO-guided therapy guidelines into practice.

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ABBREVIATIONS

DN: Diabetic Nephropathy; CKD: Chronic Kidney Disease; **ESRD:** End Stage Renal Disease; **eGFR:** Estimated Glomerular Filtration Rate; **KDIGO:** Kidney Disease: Improving Global Outcomes; **HbA_{1C}:** Glycated Hemoglobin.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

SUMMARY

This study was conducted to evaluate the impact of diabetes mellitus on the progression of diabetic nephropathy using KDIGO classification. Chronic Kidney Disease (CKD) severity was assessed based on estimated Glomerular Filtration Rate (eGFR) and albuminuria levels. The results showed that most patients had advanced stages of CKD (G4-G5) and severe Albuminuria (A3). A significant association was observed between CKD severity and poor glycemic control as well as hypertension. The study highlights the importance of early screening, strict blood glucose control, and effective blood-pressure management to prevent the progression of diabetic nephropathy.

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