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The Effect of SGLT2 Inhibitors on the Development of Contrast-Induced Nephropathy in Diabetic Patients with Non-ST Segment Elevation Myocardial Infarction

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Abstract
Background: Cardiovascular diseases continue to be the top cause of death disability worldwide. One emerging concern during (CAG) percutaneous interventions (PCI) is contrast-induced nephropathy (CIN), which is especially dangerous for diabetic patients. This study's overarching goal is to determine whether diabetic patients who suffer from -ST segment elevation myocardial infarction (NSTEMI) are more likely to develop CIN when treated with sodium-glucose cotransporter-2 (SGLT2) inhibitors. Methods: The Shebin Elkom Teaching Hospital served as the site of a prospective, single-center study that ran from August 1, 2023, to August 1, 2024. The research comprised 300 individuals with 2 mellitus, ranging in age from 24 to 80 years, split evenly between two groups: one group that used SGLT2 inhibitors (case group) another group that did not (control group). The of CIN was based on previously established criteria, serum creatinine levels were recorded both before after the procedure. Conclusions: The case group had a significantly lower incidence of CIN (5.33%) the control group (20.67%, P<0.001). Three days (P=0.035) seven days (P=0.001) after the operation, the case group's serum creatinine levels were noticeably lower. A decrease in CIN incidence was found to be significantly predicted by using SGLT2 inhibitors in both univariate multivariate analyses. Conclusion: SGLT2 inhibitor-using diabetic patients are much less likely to experience CIN during CAG PCI - users.

Keywords: Contrast-Induced Nephropathy; SGLT2 Inhibitors; -ST Segment Elevation Myocardial Infarction; Percutaneous Interventions; Diabetic Patients.

1.Introduction:

The use of contrast agents is frequent in cardiovascular angiography (CAG) percutaneous coronary interventions (PCI), two procedures that are used to diagnose treat cardiovascular illnesses, which are the main cause of death disability worldwide [1]. Patients with normal renal function or no major co-morbidities such as age, heart failure, hemodynamic instability, or diabetes should not be concerned about the safety of contrast media [3]. However, among hospitalized patients, contrast-induced acute renal failure is the third most common cause of acute renal failure, after ischemic toxic nephropathy [4]. has been acknowledged as a significant contributor to cardiovascular disease risk factors, it has been highlighted that up to 21.5% of diabetic patients undergoing elective operations run the risk of developing contrast-induced nephropathy (CIN). The pathogenesis of contrast-induced nephropathy (CIN) has been extensively studied is believed to include direct toxic effects ischemia in the kidneys caused by contrast agents [5]. With their anti-inflammatory antifibrotic characteristics, sodium-glucose cotransporter-2 (SGLT2) inhibitors regulate energy homeostasis, reduce glomerulosclerosis, offer substantial nephroprotection in addition to their well-known cardioprotective antidiabetic effects [6]. Clinical trials on SGLT2 inhibitors have shown that they lessen the pace of diabetic kidney disease development, decrease albumin excretion in the urine, improve renal outcomes via reducing intraglomerular pressure increasing renal oxygenation [7, 8]. They have the ability to lessen contrast-induced nephropathy as well [9, 10]. An significant focus for future study should be the effectiveness of SGLT2 inhibitors in diabetic patients with -ST Segment AMI, since they improve cardiovascular renal outcomes in both diabetic non-diabetic patients, particularly those with heart failure [5, 11]. The purpose of this research is to examine diabetic individuals who have had an ST-segment elevation myocardial infarction how SGLT2 inhibitors affect the progression of contrast-induced nephropathy.

2.Patients methods:

Study population

Participants in this prospective, single-center trial were patients with type 2 diabetes who had a coronary angioplasty (CAG), percutaneous coronary intervention (PCI), or use of an SGLT2 inhibitor at the Cardiology Department at Shebin Elkom Teaching Hospital between August 1, 2023, and August 1, 2024. In addition to obtaining written agreement from guardians of each patient, the study was done after receiving clearance from the Institutional of the Ethical Committee of the Faculty of Medicine, Shebin Elkom

University (clearance Code:). Hospital authorities were also involved in the process. Participants had to be diabetic with a history of STEMI, a smoker or nonsmoker, and in the age range of 24–80 years old, and they had to be using SGLT2 inhibitor medication. Patients with significant hepatic or renal impairment, patients with diabetes who had a STEMI and renal failure, and individuals with a sensitivity to contrast media were not eligible to participate. In addition, patients who opted out of PCI were not included. Each patient was randomly assigned to one of two groups: Case group (n=150): NSTEMI patients with 2 DM CAG and/or PCI utilizing SGLT2 inhibitor. Control group (n=150): NSTEMI patients with 2 DM CAG and/or PCI without utilizing SGLT2 inhibitor. Evaluation Following were applied to each of the examples that were examined: Thoroughly recording, Checklist for clinical practice: A thorough physical examination that includes a local examination as well as percussion, auscultation, palpation, and inspection Electrocardiography (ECG) and other radiological and routine laboratory tests can be necessary. Techniques Recording serum creatinine levels before 48-72 hours following CAG and/or PCI was part of the preoperative evaluations. A diagnosis of CIN was made when either the creatinine level rose by 0.5 mg/dL or 25% relative in 48 hours, or when the urine output was less than 0.5 mL/kg/h for at least 6 hours after the operation, or when the rise was more than 1.5 times the baseline level in 7 days. On the next step, the eGFR was determined (12). Using the biplane modified Simpson's approach, the left ventricular end-diastolic (LVEDD) and end-systolic (LVESD) dimensions, as well as the left atrial diameter, were assessed during the echocardiographic examination. The endocardial boundaries were manually traced from apical 4-chamber 2-chamber images to compute LV-EF. The left ventricle was then divided into stacked discs using automated software to determine end-diastolic (EDV) end-systolic (ESV) volume. A stroke risk score is calculated from each echocardiographic component; the highest score is 9. Percutaneous coronary intervention (PCI) within 90 minutes of admission or early PCI within 24 hours if initially impractical. All patients will undergo invasive procedures. Cine angiographic equipment was used to execute the operation, and guiding catheters were inserted utilizing either femoral or radial artery approaches, left and right. Significant narrowing of either artery, or of the left main or proximal LAD, is defined as 70% or more constriction, and CAG uses dye injection to view and evaluate the severity of lesions. In myocardial infarction (TIMI) flow, lesion length, infarct-related artery, and other lesion features were assessed. By giving stenosis severity values between 25% and 100%, the Gensini score was able to quantify the burden of arterial disease according to the degree and location of stenosis. The process was based on the Judkins method for CAG. Before they undergo percutaneous coronary intervention (PCI), all patients are given an intravenous bolus of heparin (70-100 IU/kg) and either a trans-femoral or trans-radial approach with a 6-furrow sheath. details such as the location of blockage, the amount of diseased arteries, and the TIMI thrombus grading (from 0 for no thrombus to 5 for complete blockage) were documented. Patients who had an ST-elevation myocardial infarction were given aspirin 300 mg and clopidogrel 600 mg. The radial artery was the usual entry point for percutaneous coronary intervention (PPCI), with ancillary procedures such as stent insertion, balloon dilation, thrombus aspiration, and tirofiban infusion administered when necessary. Treatment was considered successful if the culprit vessel achieved a TIMI flow grade of 2 or 3 with less than 50% stenosis.

Statistical analysis

I utilized SPSS v26, which is produced by IBM based in Armonk, NY, USA, for my statistical study. To compare quantitative variables across groups, the unpaired Student's t-test was used. Standard deviations (SD) means (MA) were used to represent these variables. To assess the qualitative variables, which were subsequently given as percentages frequencies, the Chi-square test or Fisher's exact test was used where appropriate. A two-tailed p-value below 0.05 was used to define statistical significance. For both one- multiple-variate models, logistic regression was used to evaluate the relationship between the dependent variable the independent variables.

3.Results:

No statistically significant differences were found between the two groups with respect to the following: age, gender, weight, height, body mass index; risk factors; smoking; hypertension; hyperlipidemia; chronic obstructive pulmonary disease; cardiovascular disease; prior atrial fibrillation; duration of diabetes; metformin; insulin use. Diuretics, statins, CCBs, ACE inhibitors, ARB inhibitors, and other medications were also not statistically different amongst the groups. According to Table 1, no statistically significant changes were seen in the two sets of vital signs. Laboratory tests such as platelet, white blood cell, glucose, hemoglobin A1c, C-reactive protein, alanine aminotransferase

(ALT), aspartate aminotransferase (AST), urea, and albumin levels were also not significantly different between the groups, nor were any differences in the number of diseased vessels. Table 2 demonstrates that the two groups' cholesterol, triglyceride, HDL, and LDL values were not significantly different from one another. According to echocardiography, was also no statistically significant difference in LVEF across the categories. Concerning procedural characteristics, including the PCI technique contrast volume, no statistically significant changes were also seen between the groups. Prior to and after surgery, the hemoglobin concentrations and estimated glomerular filtration rates (eGFRs) of the two groups were comparable (Table 3). was no statistically significant change in serum creatinine levels before the operation. However, at 3-7 days post-procedure, was a significant difference between the case and control groups (P=0.035, 0.001). Among the control group, 31 patients (20.67%) had CIN, while only 2 patients (1.33%) in the case group required dialysis. Table 4 shows that no transfusions were necessary for any of the patients. Out of the total number of patients, two (2.33 percent) in the control group and one (0.67 percent) in the case group passed away while in the hospital. Although were no notable variations in the need for dialysis, transfusions, or in-hospital mortality, the control group had a noticeably greater incidence of contrast-induced nephropathy (P<0.001). In the univariate logistic regression analysis, no additional factors were shown to be significant predictors of CIN (Table 4). However, smoking status, duration of diabetes, age, pre-procedure eGFR, left ventricular ejection fraction (LVEF), contrast volume, and SGLT2 intake were. Nevertheless, the multivariate logistic regression analysis revealed that gender, smoking status, duration of diabetes, insulin usage, pre-procedure eGFR, and SGLT2 use were the only variables capable of predicting the occurrence of contrast-induced nephropathy. Chapter 5

Table 1: Demographic Data, risk factors, duration medication of the studied groups.

		Control group (n=150)	Case group (n=150)	P value
Age (years)	**Mean± SD** **Range**	60.04 ±11.9 41-80	58.8 ± 11.66 40-79	0.373
Gender	**Male** **Female**	77 (51.33%) 73 (48.67%)	85 (56.67%) 65 (43.33%)	0.345
Weight (Kg)	**Mean± SD** **Range**	79.3±12.1 60-99	80.5±10.92 59-100	0.373
Height (m)	**Mean± SD** **Range**	1.7±0.04 1.6-1.73	1.7±0.04 1.59-1.74	0.880
BMI (Kg/m^2)	**Mean± SD**	28.7±4.6 20.38-38.28	29.1±4.34 20.18-38.19	0.408
Smoking		71 (47.33%)	67 (44.67%)	0.643
HTN		83 (55.33%)	92 (61.33%)	0.291
Hyperlipidemia		70(46.67%)	74 (49.33%)	0.643
COPD		10 (6.67%)	7 (4.67%)	0.453
CVD		11 (7.33%)	13 (8.67%)	0.670
Previous AF		41 (27.33%)	35 (23.33%)	0.425
duration (years)	**Mean± SD** **Range**	6.6±2.36 3-10	7±2.2 3-10	0.207
Medication	**Metformin** **Insulin**	122 (81.33%) 27 (18%)	126 (84%) 36 (24%)	0.541 0.202
ACE inhibitors		68 (45.33%)	80 (53.33%)	
ARB inhibitors		36 (24%)	41 (27.33%)	
CCB		26 (17.33%)	32 (21.33%)	0.813
Diuretics		16 (10.67%)	27 (18%)	
Statin		75 (50%)	82 (54.67%)	

BMI: body mass index, HTN: hypertension, COPD: chronic obstructive pulmonary disease, CVD: cardiovascular disease, AF: atrial fibrillation, ACE: angiotensin-converting enzyme, ARB: angiotensin receptor blockers, CCB: calcium channel blockers.

Table 2: Vital signs, laboratory investigations, Lipid profile of the studied groups

		Control group (n=150)	Case group (n=150)	P value
HR (beat/min)	**Mean± SD**	79.2±5.8	80±5.96	0.235
	Range	70-90	69-92	
SBP (mmHg)	**Mean± SD**	132.1±10.14	132.9±12.24	0.538
	Range	120-150	110-160	
DBP (mmHg)	**Mean± SD**	76.1±8.96	77.2±8.68	0.296
	Range	60-90	60-100	
Number of diseased vessels	**1**	65 (43.33%)	69 (46%)	0.878
	2	49 (32.67%)	48 (32%)	
	3	36 (24%)	33 (22%)	
PLT (*10^9/L)	**Mean± SD**	270.5±45.47	278.6±43.76	0.115
	Range	198-355	200-350	
WBCs (*10^9/L)	**Mean± SD**	7.8±1.89	8±1.92	0.396
	Range	4.4-11	4.5-11	
Glucose (mg/dL)	**Mean± SD**	200.1±36.16	203±34.19	0.464
	Range	140-260	141-259	
HbA1c (%)	**Mean± SD**	7.2±0.41	7.2±0.45	0.132
	Range	6.4-7.9	6.5-7.97	
CRP (mg/L)	**Mean± SD**	19.4±8.5	19.2±9.01	0.904
	Range	4.12-34.07	4.01-34.04	
ALT (U/L)	**Mean± SD**	23.6±3.24	23.6±3.52	0.986
	Range	19-29	18-30	
AST (U/L)	**Mean± SD**	23.5±3.45	23.02±3.39	0.219
	Range	17-29	18-31	
Urea (mg/dL)	**Mean± SD**	28.4±6.91	28.8±6.98	0.618
	Range	16-41	15-40	
Albumin (mg/dL)	**Mean± SD**	4.02±0.26	4.01±0.25	0.718
	Range	3.5-4.4	3.6-4.5	

QRS: erythema, Blood pressure measured at the end of the diastolic contraction Diastolic blood pressure, or DBP, Platlets (PLTs) and white blood cells (WBCs) Alanine transaminase (ALT), aspartate aminotransferase (AST), hemoglobin A1C (HBA1c), It stands for C-reactive protein. This stands for low-density lipoprotein (LDL) and high-density lipoprotein (HDL).

Table 3: Lipid profile, echocardiography procedural characteristics of the studied groups.

		Control group (n=150)	Case group (n=150)	P value
cholesterol (mg/dL)	**Mean± SD**	170.1±50.14	172±48.01	0.732
	Range	89-260	91-262	
Triglyceride (mg/dL)	**Mean± SD**	203.2±64.16	196.8±61.09	0.379
	Range	92-308	90-310	
HDL (mg/dL)	**Mean± SD**	50.6±8.84	50.2±9.45	0.738
	Range	34-65	35-66	
LDL (mg/dL)	**Mean± SD**	125.1±28.6	122±29.63	0.357
	Range	71-170	70-173	
LVEF (%)	**Mean± SD**	56.7±6.8	56.9±6.69	0.745
	Range	46-69	45-68	
PCI procedure		117 (78%)	120 (80%)	0.67
Contrast volume	**Mean± SD**	167.97 ± 56.02	169.1 ± 60.69	0.869
	Range	70-260	70-350	

HDL: high-density lipoprotein, LDL: low-density lipoprotein, LVEF: Left ventricular ejection fraction, PCI: percutaneous intervention

Table 4: Pre- postprocedural laboratory investigations, serum creatinine outcomes of the studied groups.

		Control group (n=150)	Case group (n=150)	P value
Hb (g/dL)	**Pre-procedure**	**Mean± SD**	11.9±0.86	11.9±0.89	0.576
		Range	10.4-13.4	10.5-13.6	
	Post-procedure	**Mean± SD**	12.3±1.06	12.3±1.05	0.943
		Range	10.6-14.2	10.6-14.2	
eGFR (mL/min/ 1.73 m^2)	**Pre-procedure**	**Mean± SD**	71.9±24.43	72.5±22.92	0.810
		Range	34-115	34-113	
	Post-procedure	**Mean± SD**	70.3±18.31	73.3±21.19	0.197
		Range	36-100	40-110	
Creatinine (mg/dL)	**preprocedural**	**Mean± SD**	1.4±0.17	1.3±0.17	0.190
		Range	1.1-1.6	1.1-1.6	
	3-day postprocedural	**Mean± SD**	1.5±0.43	1.4±0.44	**0.035***
		Range	0.75-2.22	0.62-2.05	
	7-day postprocedural	**Mean± SD**	1.5±0.4	1.3±0.42	**0.001***
		Range	0.74-2.14	0.62-2	
Contrast-induced nephropathy		31(20.67%)	8 (5.33%)	**<0.001***	
Dialysis requirement		2 (1.33%)	0 (0%)	0.155	
Need for transfusion		0 (0%)	0 (0%)	--	
In-hospital mortality		2 (1.33%)	1 (0.67%)	0.670	

The abbreviations "Hb" "eGFR" stfor hemoglobin "statically significant" (P-value > 0.05), respectively.

Table 5: Logistic regression analysis for prediction of the occurrence of contrast induced nephropathy.

	Univariate			Multivariate		
	OR	**95% CI**	**P**	**OR**	**95% CI**	**P**
Age (years)	0.4145	0.1981 to 0.8675	**0.019***	0.9897	0.9610 to 1.0192	0.488
Gender	0.9864	0.9585 to 1.0152	0.352	0.4136	0.1964 to 0.8708	**0.020***
BMI (Kg/m^2)	1.0160	0.8763 to 1.1781	0.833	1.0128	0.8726 to 1.1754	0.867
Smoking	0.4276	0.2126 to 0.8598	**0.017***	0.4383	0.2134 to 0.9001	**0.025***
HTN	1.7612	0.8953 to 3.4646	0.101	1.7205	0.8541 to 3.4661	0.129
Hyperlipidemia	1.2265	0.6227 to 2.4158	0.555	0.7025	0.3223 to 1.5311	0.374
COPD	2.4816	0.3198 to 19.2582	0.385	1.1584	0.1153 to 11.6394	0.901
CVD	3.6723	0.4817 to 27.9952	0.209	3.5881	0.3649 to 35.2819	0.273
Previous AF	1.0007	0.9866 to 1.0151	0.921	1.7692	0.6979 to 4.4851	0.229
duration (years)	1.0919	1.0104 to 1.1800	**0.026***	1.0900	1.0067 to 1.1802	**0.034***
Metformin	0.5071	0.1721 to 1.4946	0.218	0.4501	0.1505 to 1.3459	0.153
Insulin	1.5368	0.6136 to 3.8489	0.359	4.2114	1.2778 to 13.8802	**0.018***
HR (beat/min)	1.0034	0.9475 to 1.0626	0.908	1.0005	0.9425 to 1.0621	0.987
SBP (mmHg)	0.9745	0.9452 to 1.0048	0.098	0.9651	0.9308 to 1.0006	0.054
DBP (mmHg)	0.9887	0.9516 to 1.0272	0.559	1.0075	0.9641 to 1.0527	0.741
Number of diseased vessels	1.2267	0.8083 to 1.8616	0.337	1.249	0.8005 to 1.9489	0.327
PLT (*10^9/L)	1.0017	0.9942 to 1.0093	0.657	1.0012	0.9934 to 1.0091	0.759
WBCs (*10^9/L)	0.9979	0.8364 to 1.1906	0.981	0.9985	0.8275 to 1.2048	0.987
Glucose (mg/dL)	1.0024	0.9928 to 1.0121	0.619	1.001	0.9907 to 1.0114	0.849
HbA1c (%)	0.5949	0.2691 to 1.3149	0.199	0.5847	0.2539 to 1.3465	0.207
CRP (mg/L)	1.0036	0.9657 to 1.0431	0.854	1.0034	0.9624 to 1.0461	0.873
ALT (U/L)	0.9481	0.8567 to 1.0492	0.302	0.9414	0.8470 to 1.0464	0.263
AST (U/L)	1.0018	0.9080 to 1.1054	0.971	0.9978	0.8996 to 1.1066	0.966
Urea (mg/dL)	0.9587	0.9126 to 1.0071	0.093	0.9535	0.9064 to 1.0032	0.066
Albumin (mg/dL)	1.5079	0.4000 to 5.6848	0.544	1.6154	0.3980 to 6.5565	0.502
cholesterol (mg/dL)	1.0003	0.9935 to 1.0072	0.923	0.9999	0.9927 to 1.0072	0.981
Triglyceride (mg/dL)	0.9985	0.9931 to 1.0039	0.584	0.9973	0.9916 to 1.0031	0.362
HDL (mg/dL)	1.0164	0.9791 to 1.0551	0.392	1.0199	0.9809 to 1.0604	0.322

LDL (mg/dL)	0.9990	0.9876 to 1.0107		0.871	1.0011	0.9887 to 1.0136	0.868
Preprocedure Hb (g/dL)	0.9390	0.6383 to 1.3815		0.749	0.9575	0.6353 to 1.4431	0.836
Preprocedure eGFR (mL/min/ 1.73 m^2)	3.3333	1.1439 to 9.7131		**0.027***	0.2128	0.0940 to 0.4815	**0.002***
Preprocedure creatinine (mg/dL)	0.3341	0.0438 to 2.5468		0.290	0.2515	0.0295 to 2.1440	0.207
LVEF (%)	0.9590	0.9217 to 0.9978		**0.038***	1.0462	0.9913 to 1.1042	0.100
PCI procedure	0.6507	0.2598 to 1.6297		0.3590	0.5811	0.2219 to 1.5219	0.269
Contrast volume	1.0051	1.0008 to 1.0096		**0.023***	1.0011	0.9949 to 1.0073	0.736
SGLT2 use	0.2163	0.0958 to 0.4884		**<0.001***	0.1973	0.0862 to 0.4517	**<0.001***

4.Discussion:

The demographics of the two groups did not vary significantly from one another. Similarly, a group of writers set out to determine Dapagliflozin's role in CIN after PCI cardiac catheterization using prospective study. Statistical analysis revealed no gender or age differences between the groups (13).

The present investigation did not find any statistically significant variations in risk variables between the two categories. Our results are corroborated by the fact that no statistically significant difference was seen in smoking or hypertension between a group of diabetic patients who were treated with SGLT2 inhibitors a control group who were not [5].

No statistically significant differences in diabetes duration, metformin intake, or insulin usage were seen between the two groups in this study. Newly published data supports this hypothesis by showing that neither the SGLT2 inhibitor group nor the control group differed significantly from one another with respect to insulin consumption, duration of diabetes, or metformin use[5].

Our research shows that when it comes to the use of additional drugs, neither group differs significantly from the other. Similarly, the usage of angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), calcium channel blockers (CCBs), diuretics, statins was shown to be not substantially different between those who used SGLT2 inhibitors those who did not [14].

were no statistically significant changes in the two groups' vital signs in our investigation. Users -users of SGLT2 inhibitors did not vary substantially with respect to SBP DBP, according to the same publication [14].

No statistically significant difference in the frequency of diseased vasculature was observed between the two groups in the present investigation. This is in line with what other researchers have found, since they also found comparable outcomes in DM patients using SGLT2 inhibitors as opposed to those who did not [5]. The results of previous studies showed that the SGLT2 inhibitor group had more stents inserted the control group (p=0.041), which contradicts our findings [15].

Neither group differed significantly from the other in our laboratory tests. This confirms the results of a previous research that found no statistically significant difference in glucose, HbA1c, CRP, ALT, or AST levels between the diabetic individuals who used SGLT2 inhibitors the control group who did not [5].

The current investigation demonstrated no statistically significant difference in cholesterol, triglycerides, HDL, or LDL values between the two groups. was also no statistically significant difference in cholesterol levels between those who used SGLT2 inhibitors those who did not, according to Hua et al. (2022) [14].

was no statistically significant difference in LVEF between the two groups in this investigation. Consistent with this conclusion, a published research found no statistically significant difference in LVEF between the SGLT2-using mellitus patients the control group that did not utilize SGLT2 [5].

Our shows that when it comes to procedural details like PCI contrast volume, is no discernible difference between the two groups. Furthermore, a number of researchers have shown that both the control group patients with mellitus who were given SGLT2 had comparable contrast dosages [15].

Our study indicates that was no significant difference in Hb concentration and estimated glomerular filtration rate (eGFR) between the two groups before to and after surgery. These findings corroborate those of previous studies that also failed to detect any statistically significant changes in eGFR between the placebo and dapagliflozin groups at baseline or throughout follow-up [13]. However, a meta-

analysis of six clinical trials found that SGLT2 inhibitors significantly delay the decline in eGFR [16]. While -users may have a lower risk of cardiovascular events, SGLT2 inhibitors such dapagliflozin may increase the eGFR slope [17].

The blood creatinine levels of the case and control groups differed significantly three to seven days after surgery, despite the fact that these levels had not changed much before the procedure. While other researchers found no difference in baseline serum creatinine levels between placebo and dapagliflozin patients, those in the dapagliflozin group showed a significant decrease in creatinine levels throughout follow-up [13].

In this investigation, CIN was seen in both the control case groups. Both the control group the case group had in-hospital death rates, dialysis was necessary for the control group patients. Neither group required transfusions. While were no statistically significant differences in dialysis need, transfusions, or in-hospital mortality, the control group had a much greater incidence of CIN the case group. In a similar vein, a number of researchers found that dapagliflozin dramatically reduced the occurrence of contrast-induced nephropathy when compared to placebo[13].

Only the following characteristics were shown to be significant predictors of CIN in our study: age, smoking, duration of diabetes, pre-procedure eGFR, left ventricular ejection fraction (LVEF), contrast volume, SGLT2 usage. Likewise, a research found that SGLT2 usage, age, pre-procedure eGFR were significant predictors of CIN [14].

The present investigation found that gender, smoking, duration of diabetes, insulin usage, pre-procedure eGFR, SGLT2 use were significant predictors of CIN using multivariate logistic regression analysis. This confirms the results of a previous research that demonstrated that, after controlling for other variables, the use of SGLT2 inhibitors was a significant predictor of lower rates of contrast-induced acute renal damage [15]. The risk of CIN was shown to be -significantly increased with increasing age baseline blood creatinine levels, according to some investigators [13].

A number of restrictions impact the findings of the research. Both the limited sample size the single-center methodology make it difficult to generalize the findings to the broader population with diabetic NSTEMI. Despite defining CIN using conventional creatinine alterations, the study only included patients with NSTEMI focused on SGLT2 inhibitors, which may have limited the results' application. The renal effects safety of different SGLT2 inhibitors may be concealed when they are grouped together. Adverse events associated with SGLT2 inhibitors, such as diabetic ketoacidosis UTIs, were not well documented in the research either. Last but not least, the research may miss the long-term effects of SGLT2 inhibitors on kidney function CIN development since it is focused on short-term issues.

5.Conclusion:

The risk of CIN is much reduced in diabetic people who take an SGLT2 inhibitor compared to those who do not. Particularly in individuals with co-morbid diseases like diabetes, the powerful pleiotropic effects of SGLT2 inhibitors may shield or forestall the onset of CIN.

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