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Research Article

**STUDY OF THE EFFECTS OF ACUTE RENAL FAILURE IN  
KNOWN PATIENTS CASE OF DIABETES**<sup>1</sup>Dr. Zainab Zafar, <sup>2</sup>Dr Huda Arshad, <sup>3</sup>Dr Tehreem Hussain<sup>1</sup>RMU and Allied Hospitals, Rawalpindi<sup>2</sup>RMU and Allied Hospitals Rawalpindi<sup>3</sup>Benazir Bhutto Hospital Rawalpindi**Article Received:** April 2020**Accepted:** May 2020**Published:** June 2020**Abstract:*****Aim:** To know the results of patients with renal diabetes and acute renal failure.****Place and Duration:** In the Nephrology department of Services Hospital Lahore for one year duration from January 2019 to December 2019.****Methods:** The inclusion criteria were all adult patients who were diagnosed with type II diabetes and suspected ARF. Patients were treated conservatively or by dialysis, patients were evaluated for a total of 6 weeks, and the result was defined as complete cure, need for dialysis or mortality.****Results:** We conducted a study on 100 patients, 56 of whom were men and 44 women. Sepsis was the most important causative agent of ARF in 69% of patients, while urinary tract infection was the main focus in 71.2% of patients. Other ARF factors included hypovolemia (20%), cardiovascular (13.7%), acute glomerulonephritis (3.15%) and contrast exposure (2.1%). While 75 patients required dialysis in the study population, 25 patients were treated conservatively. Finally (67.39%) the patient recovered (15.21%) became dependent on dialysis and (17.39%) died. Dialysis and sepsis were used in all expired people (81.25%).****Conclusion:** it is well documented that patients with diabetes are prone to developing ARF and urinary tract infections are common. Patients recover with the appropriate antibiotic regimen. Patients requiring dialysis as intervention show a high level of morbidity and mortality. To avoid any avoidable cause of ARF, it is necessary to take the necessary measures to assess patients with diabetes, as this can reduce dialysis dependency and mortality.****Key words:** ARF, acute renal failure, diabetes, disease course***Corresponding author:****Dr. Zainab Zafar,**

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**INTRODUCTION:**

ARF (acute renal failure) is associated with long-term morbidity and death rates, reaches levels above 30%, is classified as one of the most common diseases found by nephrologists. Mortality and morbidity rates increase as the disease progresses, as long as dialysis is needed. Even if there is a slight decrease in kidney function, a long hospital stay, increased costs, and higher morbidity and mortality rates are observed. Contrast-induced kidney disease and acute renal failure are associated with diabetes, can cause an ARF episode in combination with diabetic kidney disease, a cardiovascular disease that can cause kidney failure due to sepsis, nephrotoxic factors, atherosclerosis or ischemic heart disease, and a decrease in blood. Emphasis. It is assumed that patients with diabetes are progressing to kidney disease. We conducted a study to identify and identify factors and results that may lead to the development of ARF in patients with diabetes.

**TOOLS AND METHODS:**

The study was held in the Nephrology department of Services Hospital Lahore for one year duration from January 2019 to December 2019. The inclusion criteria were all adult patients with possible ARF and a diagnosed case of diabetes. ARF required hospitalization when 1) it was found that creatinine constituted more than 50% of the first known reading. 2) In the absence of reference readings, it was thought that a patient who needed dialysis six weeks later did not need it or recovered after dialysis, or had a reduced serum creatinine level. According to the level of acceptance, 50% of renal failure cases in patients with known causality diabetes were recognized as acute renal failure, and basal serum creatinine readings are unknown and absent. He died during recovery or treatment before recovering for six weeks before hospitalization. Exclusion criteria 1) Diabetic patients diagnosed with known and documented decrease in renal function who ultimately require dialysis. 2) Diabetic patients who have not had kidney function tests in the past, or who have kidney failure before injury or acute kidney damage. 3) Patients with diabetes and kidney transplants. History was obtained from all

patients, including, but not limited to, patient biological data, comorbidities (diabetes, hypertension, CAD, drug history or intervention history). Serum creatinine levels, including blood and urine cultures, if any, were observed and analyzed during application and renal ultrasound was performed in all patients. Patients were treated conservatively or dialyzed. Dialysis time was also recorded and a kidney biopsy was performed as needed (if the cause of renal failure was not recognized). Patients were followed for six weeks and all patients' results were recorded as 1. 1) Complete recovery, i.e. renal function, returned to normal with a decrease in serum creatinine of more than 50%. Patients who were originally enrolled in the study or who require dialysis no longer need it because their normal kidney function has returned. 2) Patients become dependent on dialysis 3) Mortality rate. Data were analyzed using SPSS version 20.

**RESULTS:**

We conducted a study on 100 patients, including 56 men and 44 women. All patients had the possibility of developing ARF in 81 patients and probability of ARF in 19 patients. Patient characteristics are described in Table 1: Basic parameters of renal function test were known in 47 patients and mean creatinine value was  $3.04 \pm 1.4$  mg / dl. About 52% of this information was unknown. Other factors see Table 2. Five out of 20 patients with ARF caused hypovolemia with excessive diuretics, 3 patients were diagnosed with gastroenteritis, and the remaining 12 patients had hypovolemia. In patients with acute renal failure due to heart disease, 7 had acute heart disease, 7 had TLC, dilated cardiomyopathy or both. 10 patients resolved this, 2 died and 2 became addicted to dialysis. Pathogens cultured from the blood and / or urine of septic patients were Gram-negative bacilli 35 (53%), *Staphylococcus aureus* 5 (7.57%) and *Enterococci* 2 (3%). About 82.8% of Gram-negative sepsis cases were responsible for *E. coli*, while most of the isolated strains were resistant and induced by urine, while methicillin resistant *staphylococcus aureus* was responsible for soft tissue infection.

**Table 1: Characteristics of Patients**

Characteristics	N (%)
Mean age in years	56.3 +/- 11.2
<b>Gender</b>	
Female	44(44%)
Male	56(56%)
Mean duration of diabetes	10.1 +/- 7.5
Hypertention	70(70.5%)
Smokers	22(22.1%)
IHD	27(27.4%)
ACE / ARB	22(51.16%)
Antihypertensive medication	43(62.6%)
Others	21(48.84%)
<b>Admission renal function</b>	
Mean serum creatinine mg/dl	8.3 +/- 3.79
<b>Baseline renal function</b>	
Mean serum creatinine mg/dl	3.04 +/- 1.44
<b>Kidney ultrasound</b>	
Borderline size	12(12.6%)
Normal size	49(49.5%)
Asymmetrical	17(16.8%)
Dilated pelvic	15(14.7%)
Kidney Stones	7(7.36%)

**Table 2: Factors leading to acute renal failure.**

Sepsis n=69	Urinary Tract	49(71.2%)
	Malaria	2(3.03%)
	Skin / soft tissue	14(19.6%)
	Gastrointestinal/ liver	3(4.5%)
	Respiratory tract	7(10.6%)
Multiple factors		39(38.9%)
Volume depletion		20(20%)
Glomerulonephritis		3(3.15%)
Contrast Exposure		2(2.1%)
Cardio renal		14(13.7%)

**Table 3: Outcome of Renal Failure**

Outcome	Dialysed n=75	Not dialysed n=25
Deaths	17(17.4%)	
Dialysis dependent	15(15.21%)	
? 50% reduction in Serum Cr	19(25.8%)	5(20.9%)
Serum Cr value reach baseline	14(19.3%)	3(12.9%)
Follow up mean Cr in recovered Patients after 6weeks	2.47 +/- 1.23 mg/dl	3.65+/-1.65mg/dl
<50% reduction in serum Cr	16(20.9%)	0

Patients were divided into two groups: dialysis and conservative treatment: 75 (75%) patients required dialysis, and the remaining 25 (25%) were treated conservatively. 48 (65.3%) patients continued dialysis for <2 weeks, and 26 (34.7%) were still dependent on dialysis for 2 weeks (2-6 weeks). The results of the study are given in Table 3. Of the 14 patients who died (81.25%), the main cause of death was all dialysis and sepsis.

## DISCUSSION:

According to our study, due to various reasons for the development of ARF in patients with diabetes, we examined a total of 100 patients with possible acute renal failure within 8 months, most often causing sepsis. Diabetes susceptibility to infections is widely accepted but supportive data are rare. According to a study by Muller et al., People with diabetes are more likely to develop respiratory, urinary and skin infections than the control group. Briver et al. And Uchino and two other studies have shown that sepsis is a common factor in acute renal failure (48%) in ICU patients. In our study, the most common sources of sepsis are urinary tract infection and skin infections. It is well known that diabetic patients have a complicated course of urinary tract infection and are generally at risk for complex infections. In his research, Karton et al. It was found that they have diabetes in 2/3 bacteraemia patients and that there is a urinary tract infection due to bacteraemia in the pathogenesis region. Reduction of urinary cytokine secretion was used for the ureteral epithelium as a cause of bacterial adhesion and urinary tract infection, and it was suggested that peripheral neuropathy and cystopathy are associated with pathogenesis. Regarding skin infections, Gram-negative wound infections have been reported to be three times more common in diabetics, and in our study, skin infection is the second most common cause of sepsis. According to our study, the second most common cause of acute renal failure was hypovolemia due to one or more factors. According to research by Rashid et al., Gastroenteritis (32%) is a major factor, and sepsis (21.3%) is the second ARF factor. According to research conducted in a neighboring country of India, the results of ARF factors were sepsis (52.9%) UTI (50%) NSAIDs (40%) gastroenteritis (12.9%). Vakrani et al. According to studies conducted by 260 diabetic patients in addition to diabetic nephropathy, Parakash et al. 32 patients found. According to our study, patients with ARI are at a higher risk of dialysis (75.8%). ARI-requiring dialysis has a high risk of mortality and morbidity, and the risk increases in combination with other comorbidities such as hypertension such as a large number of deaths. occurs in hospital and in 5-20% of ARI victims requiring chronic kidney disease and end-stage renal dialysis. In our study there were no deaths in conservatively treated patients, a significant number of deaths in the group requiring

dialysis. Vakrani et al. According to the study, 64.3% of patients showed full recovery and the results are similar to our study. In various studies, mortality was reported as 14-70%. Various factors are associated with ARI factors, such as age, pre-diagnosis health and length of hospital stay.

## CONCLUSION:

It is well documented that diabetics develop ARF and urinary tract infection is common. Patients recover with the appropriate antibiotic regimen. Patients requiring dialysis as intervention show a high level of morbidity and mortality. To avoid any avoidable cause of ARF, it is necessary to take the necessary measures to assess patients with diabetes, as this can lead to a reduction in the frequency of dialysis dependence and mortality.

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