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Original Research Paper

"A STUDY ON THE CLINICAL-EPIDEMIOLOGICAL PROFILE OF PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT WITH ACUTE KIDNEY INJURY IN A TERTIARY CARE HOSPITAL"

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ABSTRACT:

Background: Acute kidney injury (AKI) is described as a loss of kidney filtration and excretory function over days or weeks, resulting in the retention of nitrogenous and other waste products ordinarily eliminated by the kidneys. The extent of the problem is so severe that one in every five adults and one in every three children globally develop AKI during hospitalization.[1]

OBJECTIVES:

1. To study the clinical-epidemiological profile of patients presenting with Acute kidney injury to the emergency department

2. To find out the presumptive aetiology of AKI while the patient is in the Emergency department.

MATERIAL & METHODS: Study Design: A Clinical Prospective Observational Study. **Study area:** The study was conducted in the Department of Emergency Medicine. **Study Period:** 1 year. **Sample size**: The study consisted of a total of 100 subjects. **Sampling Technique:** Simple Random technique. **Study tools and Data collection procedure:** Sample of Venous blood gas – 1ml of venous blood in a 2ml heparinised syringe was used PHOX ULTRA MACHINE by Nova Medical was used for analysis of venous blood gas. Sample for renal function test of venous blood in serum vial collected and results obtained based on a spectrophotometer and calorimeter method. MODULAR P800 by ross company

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was used for the analysis of kidney function tests Sample for urine routine and microscopy-5ml of urine collected in the sterile container.

Results: Out of the 100 cases, 57 cases were admitted, 18 cases were discharged and 25 cases died in the emergency. Out of 57 admitted patients,22 patients received dialysis 16 patients were discharged and 5 patients died. The overall ED mortality associated with Acute kidney injury was 25 cases (25%). Out of 100 cases recruited, 75 cases were alive and 18 cases got discharged from emergency. Out of 25 deaths in ED, 21 cases had refractory metabolic acidosis, 16 cases had refractory septic shock and 11 cases had refractory hyperkalemia.

CONCLUSION: In our investigation, we discovered that HRS and sepsis are the most common causes of acute kidney injury. HRS remains a disorder with a high death rate due to the co-morbidity of CLD. Common and critical illnesses necessitate prompt diagnosis and treatments, such as dialysis. Understanding the etiologies and factors influencing mortality outcomes can help with patient treatment, preventing the onset of AKI, and avoiding unnecessary deaths.

Keywords: Acute kidney injury, Hypotension, Sepsis

INTRODUCTION:

Acute kidney injury (AKI) is described as a loss of kidney filtration and excretory function over days or weeks, resulting in the retention of nitrogenous and other waste products ordinarily eliminated by the kidneys. The extent of the problem is so severe that one in every five adults and one in every three children globally develop AKI during hospitalization.[1] AKI has three causes: pre-renal, intrarenal, and post-renal. AKI can vary in severity from asymptomatic with transient changes in laboratory measurements of glomerular filtration rate to rapidly lethal derangements in effective circulation volume, electrolyte, and acid-base compositions of the plasma.

Many negative consequences of AKI, such as increased length of hospital stay, progression to chronic kidney disease (CKD), and mortality, have been reliably demonstrated in diverse patient populations.[2-7] AKI care reverses the underlying cause and addresses fluid and electrolyte imbalances.[8] Because of India's wide geographical and socioeconomic variety, the prevalence and consequences of AKI vary by location. These characteristics, together with the available research's single-centre, retrospective methods, limit the generalizability of their findings.

The majority of those affected are between the ages of 60 and 80, with surgeries, diabetes mellitus, and hypertension being the most prevalent comorbidities. Pneumonia, heart failure, chronic liver disease, stroke, and a history of chronic illness. Presently, the Universal Policy and the International Society of Nephrology (ISN) are focusing on eliminating unnecessary fatalities from AKI in low-income countries by 2025. [(9,10)]

AKI complicates 5-7% of acute-care hospital admissions and up to 30% of ICU admissions. Reversible factors such as volume depletion, medicines, infection, or urinary obstruction account for the majority of community-acquired AKI cases presenting to the ED (55%-79%).

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Despite favourable renal recovery rates, community-acquired AKI is associated with considerable hospital mortality (7.3% to 19.6%), with 3-year death rates ranging from 45% to 66%. Hospital-acquired AKI is defined as occurring or worsening in the hospital, with fatality rates ranging from 27% to 62%. Mortality rates for both kinds of AKI increase with age and severity of the condition [(11)].

Furthermore, the management of AKI in the ED and suitable disposal have not been optimized. Again, the population presenting at the emergency department is generally varied, with complex medical histories and no good primary care follow-up. Again, around one-third of community-acquired AKIs may be detected in the emergency department. As a result, emergency physicians frequently attend to a large number of AKI patients who can be treated if detected early on, managed, and discharged safely and correctly from emergency settings.

The major goal of this study was to investigate the clinic-epidemiological characteristics of individuals with AKI who presented to the emergency department. The secondary goals were to determine the presumed aetiology of AKI while patients were in the ED, as well as the mortality and disposition outcomes from the emergency department.

OBJECTIVES:

1. To study the clinical-epidemiological profile of patients presenting with Acute kidney injury to the emergency department

2. To find out the presumptive aetiology of AKI while the patient is in the Emergency department.

3. To identify the Following outcomes

i) In the Emergency department mortality

ii) Admission/discharge

MATERIAL & METHODS:

Study Design: A Clinical Prospective Observational Study.

Study area: The study was conducted in the Department of Emergency Medicine.

Study Period: 1 year.

Sample size: The study consisted of a total of 100 subjects.

Sampling Technique: Simple Random technique.

Inclusion criteria:

1) Adults ≥ 18 years with Acute kidney injury fulfilling AKIN and KIDIGO criteria in the emergency department.

2) AKI as defined using the kidney disease improving global outcomes (KIDGO) criteria based on the increase in serum creatinine by ≥0.3 mg/dl within 48 hours or an increase in

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serum creatinine to ≥1.5 times baseline which is presumed to have occurred within the prior 7 days.

3) Patients willing to give consent.

Exclusion criteria:

1) Chronic kidney disease (Pre-existing kidney disease with ultrasonography of the abdomen suggestive of bilateral small kidneys/loss of corticomedullary differentiation.)

2) Renal transplant patients

3) Age<18 years

4) Pregnant women

5) Not willing to give consent

Ethical consideration: Institutional Ethical committee permission was taken before the commencement of the study.

Study tools and Data collection procedure:

Sample of Venous blood gas – 1ml of venous blood in a 2ml heparinised syringe was used PHOX ULTRA MACHINE by Nova Medical was used for analysis of venous blood gas. Sample for renal function test of venous blood in serum vial collected and results obtained based on a spectrophotometer and calorimeter method. MODULAR P800 by ross company was used for the analysis of kidney function tests Sample for urine routine and microscopy-5ml of urine collected in the sterile container. The blood sample which was taken for routine investigation was used for this study. No extra blood was taken for conducting this study.

All patients presenting to the emergency department with features consistent with Acute kidney injury were screened for inclusion and exclusion criteria. Patients who satisfied the inclusion criteria were recruited in the study. Written informed consent was obtained from the patient fulfilling the inclusion criteria. After taking informed consent, all relevant data was collected in predesigned proforma, which included demographic profile, duration of illness, associated symptoms and comorbidities, general physical examination and relevant systemic examination, laboratory parameters, imaging impressions, emergency disposition, final diagnosis and outcome.

Patient history and physical examination, with an emphasis on assessing the patient's volume status, were crucial for determining the cause of acute kidney injury. The history of nephrotoxic medications or systemic illnesses that might cause poor renal perfusion or directly impair renal function was assessed. Physical examination was assessed for intravascular volume status and any skin rashes indicative of systemic illness. The laboratory parameters obtained included urinalysis, complete blood count, and measurement of serum creatinine level and fractional excretion of sodium (FENa). Imaging findings of X-ray and ultrasound abdomen and Kidney Urinary Bladder area to rule out obstruction and other structural lesions Were also noted.

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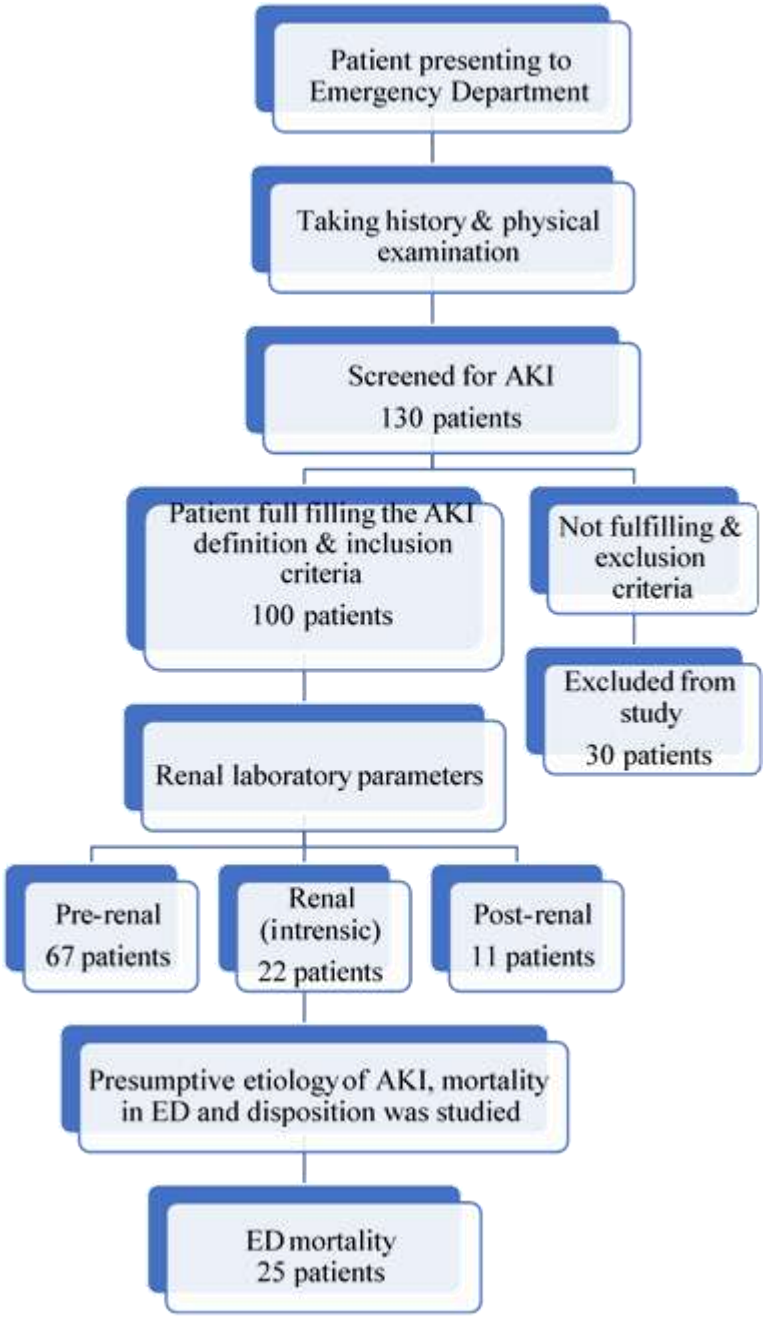

Statistical analysis:

All the data was collected in predesigned proforma and entered into a Microsoft Excel spreadsheet on the computer. All subjects were included in the analysis To describe the patient's characteristics demographics, clinical and radiological the data was summarised and analysed using statistical package for social sciences (SPSS, version 24) or STATA (version 14) software. Continuous data was expressed as mean ± SD and qualitative data expressed as numbers and percentages as appropriate data were tested for normality using the Kolmogorov- Smirnov test. For comparison of categorical data, the chi-square/Fisher's exact test was performed to see the association. Logistic regression was used to find the risk of mortality in univariate analysis. Step-wise logistic regression was used to find the risk factor

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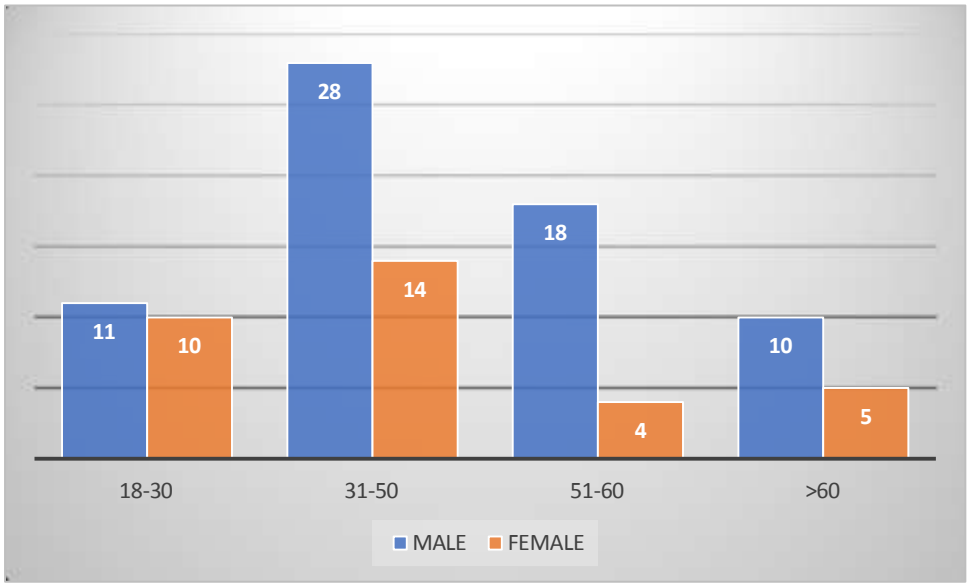
in multivariable analysis with a 95% confidence interval. A p-value of < 0.05 was considered statistically significant.

OBSERVATIONS & RESULTS:

A total of 100 cases of Acute Kidney Injury were recruited for the study. AKI was diagnosed based on serum creatinine and urea level, urine output and various other parameters.

Fig 1: Gender distribution based on age group (n=100)



Out of the 100 cases recruited, 42 cases were in the age group of 31-50 years. Whereas 15 cases were in the age group more than 60 years. The age group of 18-30 years included 21 cases and the age group of 51- 60 years included 22 cases. The mean age of patients was found to be 45.93Y + 15.79. Maximum AKI patients were young adults and middle-aged in the age group of 31-50 years.

Among the gender distribution, males were predominant with 67 cases out of a total of 100 cases. The male: female ratio was found to be 1.5:1

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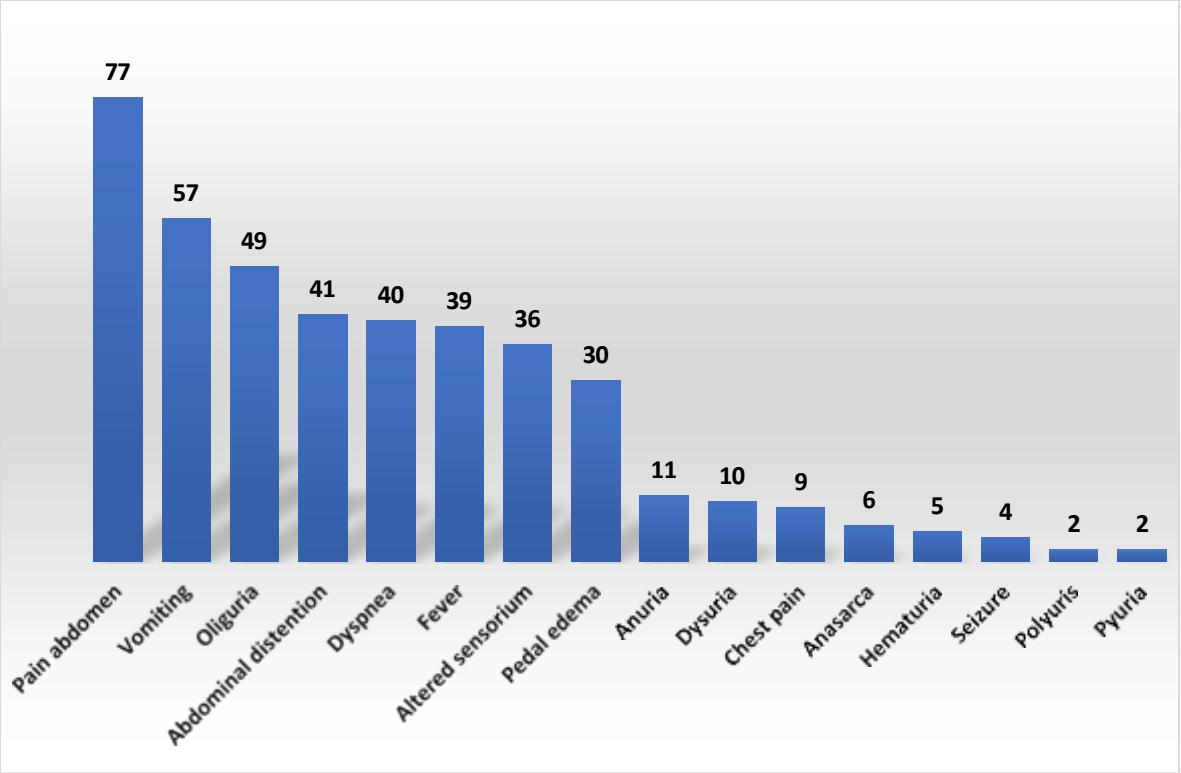
Fig 2: Presenting symptoms in patients with AKI.



Common presenting symptoms in patients with AKI were oliguria (49) and anuria (11), fever (39), pain abdomen (77), vomiting (57), altered sensorium (36), dyspnea (40), chest pain, polyurea, hematuria and seizures. (Figure 4). Pain abdomen was the predominant feature because most of the patients were already diagnosed with CLD with a distended abdomen due to ascites as co-morbid conditions.

Addiction and habituation among patients presenting with Acute kidney injury were found to be mainly alcohol intake (44) and smoking (41). There were 3 cases of other substance abuse. Most of the patients were suffering from CLD due to underlying alcohol risk factors.

Common comorbidities associated with Acute kidney injury were hypertension (20), chronic liver diseases (32), diabetes mellitus (20), cardiac disorders (9), malignancy (13) and cerebrovascular accidents (12). Around 16 cases had both diabetes mellitus and hypertension as comorbidities.

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Table 1. Primary survey

Variables	n (100)
Airway	
Room air	47
Oxygen	24
NIV	10
Intubated	19
Breathing	
RR < 20/min	54
RR >20/min	46
Oxygen Saturation <90%	24
Oxygen Saturation >90%	76
Circulation	
HR> 100/min	58
HR < 100/min	42
BP < 90/60mmHg	16
BP >90/60mmHg	84
Disability	
Random blood sugar < 70mg/dl	4
Random blood sugar >70mg/dl	96

On the primary survey, the airway was found to be patent in 47 cases. A total of 24 cases were on oxygen and 10 cases on non-invasive ventilation and the Airway was secured using endotracheal intubation in 19 cases. Most of the patients were intubated for threatened airways because of low GCS and altered mental status. On breathing assessment, 46 cases were found to have respiratory rates less than 20/min. However, 54 cases had respiratory rates of more than 20/min. Oxygen Saturation was more than 90% on room air in 76 cases. 58 cases had tachycardia with a pulse rate of more than 100/min. Hypotension was present in 16 cases, which was managed initially with fluid boluses.

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Pallor was appreciated in 13 patients. 25 patients were found to have icterus. Bilateral pitting oedema was found in 30 cases. Lymphadenopathy was not found in any of the patients. Relevant systemic examination revealed added breath sounds (crepitations) on chest auscultations (24 cases), distended abdomen with dullness on percussion (34 cases), and pleural effusion (16 cases).

Table 2. Lab investigation values

Variables	n (100)
TLC	
< 12,000/mm^3	40
≥ 12,000/mm^3	60
Hb	
< 10g/dl	62
≥ 10g/dl	38
Platelet	
< 1.5L/mm3	49
≥ 1.5L/mm3	51
Urea	
< 50mg%	15
≥50mg%	85
Bilirubin	
<1mg%	37
≥1mg%	63
Sodium	
< 135mmol/L	40
135-145mmol/L	51
>145mmol/L	9
Potassium	
< 3.5mmol/L	8
3.5-5.5mmol/L	56
5.5mmol/L	36
pH	
<7.35	68
7.35-7.45	24
>7.45	8
Acid-Base disorder	
Metabolic acidosis	77
Metabolic alkalosis	14
Respiratory acidosis	4
Respiratory alkalosis	4

A total of 77 patients had metabolic acidosis and 14 patients showed metabolic alkalosis. Only 4 patients each had respiratory acidosis and alkalosis.

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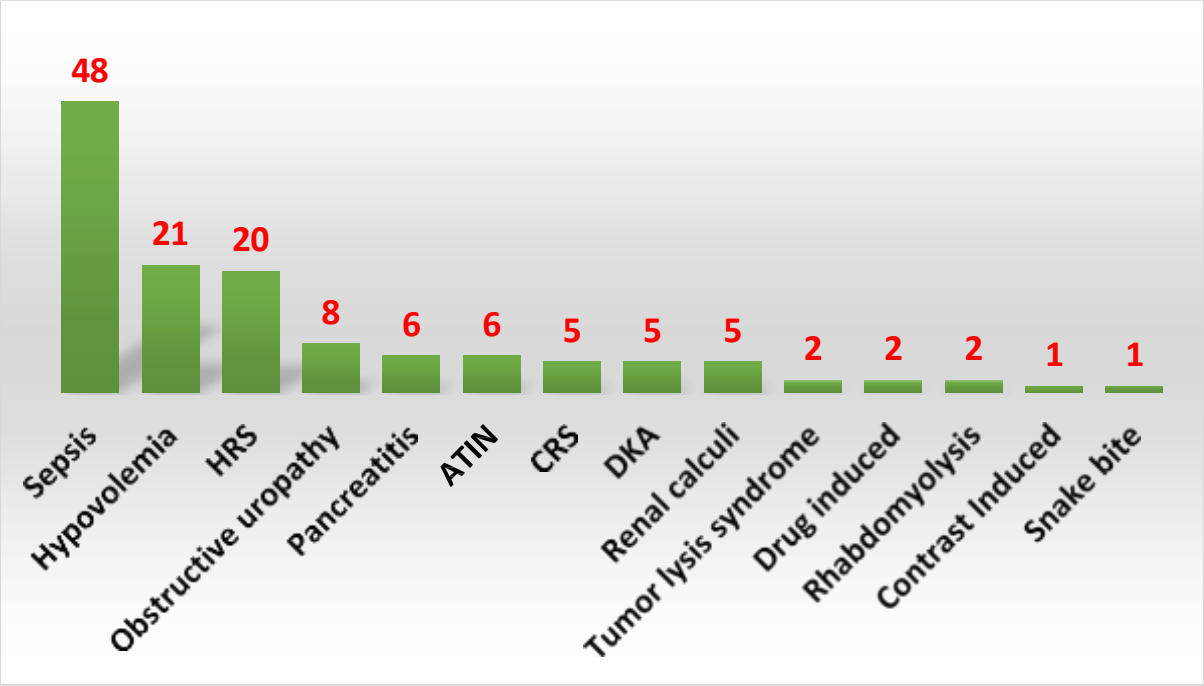
Fig 3: Presumptive aetiology of AKI



Common etiologies were found to be sepsis (48), hypovolemia (21), HRS (20), obstructive uropathy (8), renal calculi (5), pancreatitis (6), ATIN (6), DKA (5), CRS (5), 2 cases each of tumour lysis syndrome, rhabdomyolysis and drug-induced and 1 case each of snake bite and contrast-induced.

Among 48 cases of sepsis, the common causes were pyelonephritis, urinary tract infections, Pneumonia, SBP, gas gangrene and cellulitis. Sepsis was diagnosed based on the qSOFA [(12)] scoring system. Among sepsis,7 cases were Intubated, and 29 cases were in AKIN stage 3. Discharged and admitted were 6 and 29 cases respectively. Hypovolemia was found in 21 cases. They were initially managed with Intravenous crystalloids, 5 cases improved and discharged from ED and 11 cases were admitted. HRS was found in 20 cases which were diagnosed based on HRS diagnostic criteria [(13)] and after ruling out other causes. Discharged and admitted were 2 and 9 cases respectively.

The majority of cases were found to be pre-renal (67) and the common Etiology was sepsis, hypovolemia and HRS. Out of 67 cases, there were Intubated (13), discharged (12) and admitted (34) patients. Renal and post-renal causes of AKI were found in 22 and 11 cases respectively. The severity of AKI can be classified based on AKIN criteria using creatinine level. A total of 48 cases were in stage 3. In Stage 1 and Stage 2, there were 20 and 32 cases respectively.

On analyzing the duration of ED stay for 100 cases, 51 cases were in ED for 12-24 hours. A total of 9 cases were in ED for a period of <12 hours and 40 cases were for more than 24 hours.

Out of the 100 cases, 57 cases were admitted, 18 cases were discharged and 25 cases died in the emergency. Out of 57 admitted patients,22 patients received dialysis 16 patients were

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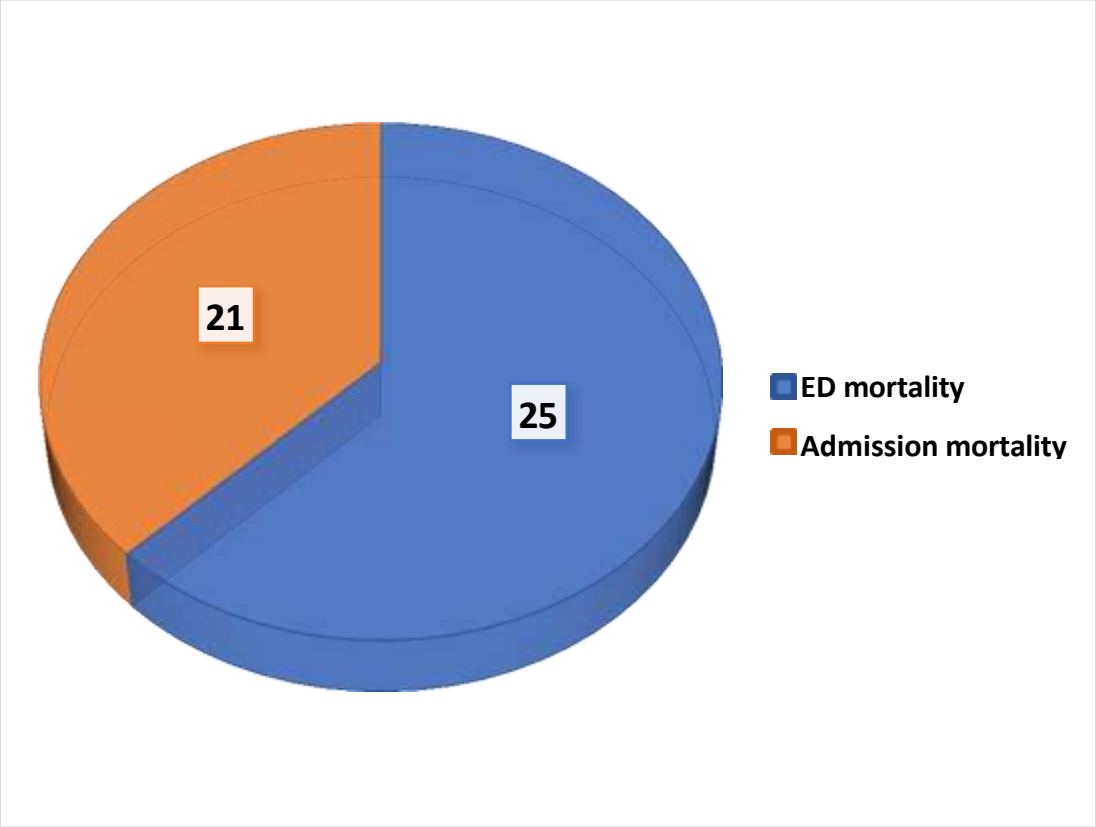
discharged and 5 patients died. The overall ED mortality associated with Acute kidney injury was 25 cases (25%). Out of 100 cases recruited, 75 cases were alive and 18 cases got discharged from emergency. Out of 25 deaths in ED, 21 cases had refractory metabolic acidosis, 16 cases had refractory septic shock and 11 cases had refractory hyperkalemia.

FIG 4: Overall mortality



Out of 57 cases which were admitted mortality among them was in 21 cases (38%). Out of 57 cases,22 patients received dialysis after admission and among them, 16 patients were discharged and 5 patients died. There was an ED mortality of 25 cases, mortality after admission was 21 cases and total mortality in 100 cases was 46 cases.

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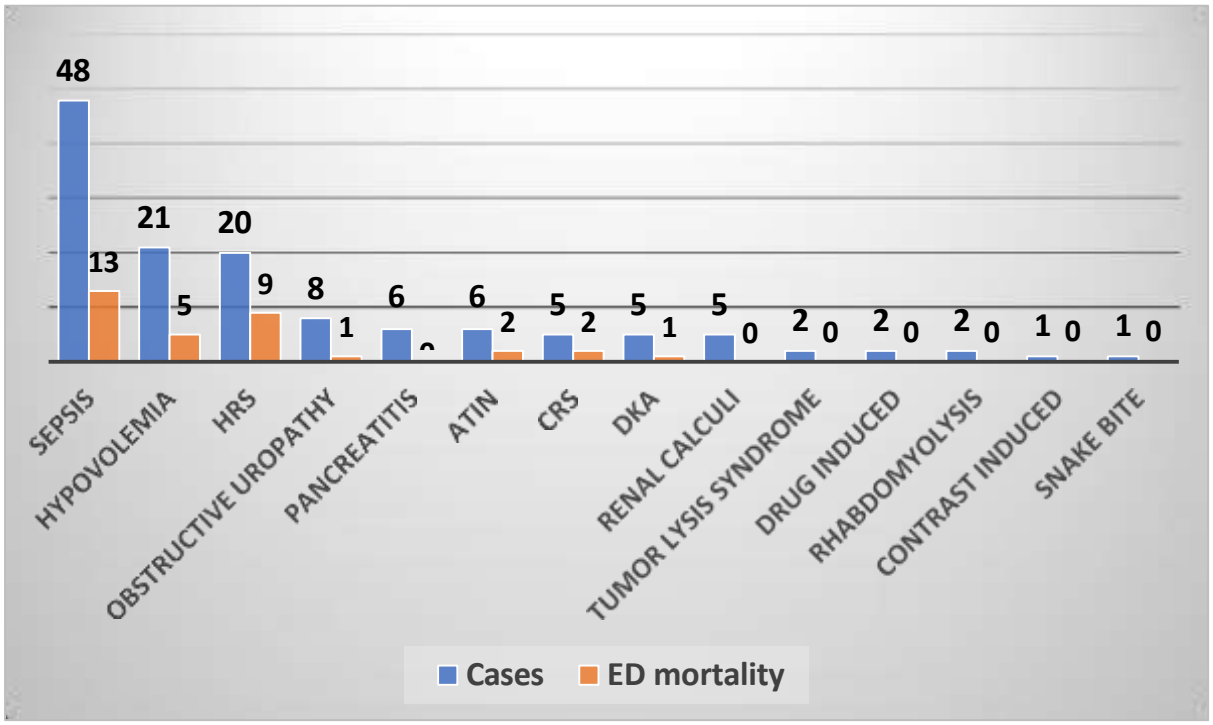
Fig 5: outcome with presumptive diagnosis



The mortality of the cases was assessed based on the presumptive diagnosis. Sepsis-diagnosed cases had a maximum number of deaths with 13 cases. Patients with Hypovolemia and HRS had a mortality of 5 and 9 cases respectively. Patients diagnosed with ATIN and CRS had a mortality of 2 cases each. All cases with the diagnosis of pancreatitis, renal calculi, tumour lysis syndrome, rhabdomyolysis and snake bite cases were alive at the time of discharge or admission.

The mortality of the cases was assessed based on the type of AKI. Pre-renal cases had the maximum number of deaths with 21 cases. Whereas 3 cases died in the renal AKI group and 1 case died in the post-renal AKI group.

Table 3: Factors Affecting Mortality Outcome of AKI Patients

Variable	Alive (n=75)	Dead (n=25)	P value	Odds Ratio
age	43.23+1.87	53.96+2.32	0.003	1.05(1.01-1.08)
Gender			0.09	2.38(0.8-7.1)
Male(n=67)	47	20		
Female(n=33)	28	5		
Smoking			0.06	2.37(0.94-6)
No(n=41)	31	10		
Yes(n=59)	44	15		
Alcohol			0.007	3.5(1.3-9.16)
No(n=43)	34	9		
Yes (n=57)	41	16		

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Oliguria			0.5	
No (n=51)	40	11		1.45(0.6-3.6)
Yes (n=49)	35	14		
Pedal oedema			0.02	2.92(1.13-7.53)
No (n=58)	45	13		
Yes (n=42)	30	12		
Abdominal distension			0.02	2.8(1.11-7.17)
No (n=44)	34	10		
Yes (n=56)	41	15		
Pain abdomen			0.4	
No (n=23)	16	7		0.7(0.25-2)
Yes (n=77)	59	18		
Fever			0.48	0.7(0.25-1.7)
No(n=61)	44	17		
Yes(n=39)	31	8		
Vomiting			0.29	-
No(n=43)	30	13		
Yes(n=57)	45	12		
Shortness of breath			0.019	3(1.17-7.62)
No(n=60)	50	10		
Yes(n=40)	25	15		
Altered sensorium			0.001	6.3(2.3-16.8)
No(n=64)	56	8		
Yes(n=36)	19	17		
Intubated			<0.01	17.8(5.4-60)
No(n=71)	60	11		
Yes(n=19)	5	14		
TLC(median[IQR])	13700(10000-20000)	11800(9800-20000)	0.62	-
Haemoglobin	9.6±2.5	8.9±3	0.2	
Sodium levels	136.4±8.4	136.74±6.2	0.8	
Potassium levels	5+1.2	5.5+1.1	0.059	1.5(0.99-2.4)
Jaundice			0.01	3.42(1.2-9.12)
No (n=64)	50	14		
Yes (n=36)	25	11		
Ascites			0.008	
No (n=52)	41	11		3.5(1.3-8.9)

Variable	**Alive (n=75)**	**Dead (n=25)**	**P value**	**Odds Ratio**
Yes (n=48)	34	14		
UGI bleed			0.003	6.9(1.82-26.1)
No (n=82)	64	18		
Yes (n=18)	11	7		

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Hepatic encephalopathy			0.01	3.8(1.3-10.8)
No(n=69)				
Yes(n=31)	54	15		
	21	10		
Chronic liver disease				
No (n=68)	56	12	0.015	3.2(1.2-8.2)
Yes (n=32)	19	13		
Hypovolemia			1	
No(n=79)	59	20		-
Yes(n=21)	16	5		
Sepsis			0.65	
No (n=52)	40	12		-
Yes (n=48)	35	13		
HRS			0.02	3.3(1.2-9.2)
No(n=80)	64	16		
Yes(n=20)	11	9		
Tall T wave			0.02	3.5(1.2-10.3)
No(n=85)	66	17		
Yes(15)	9	8		
AKIN stage			0.04	
Stage 1	16	4	0.55	-
Stage 2	28	4	0.03	
Stage 3	31	17	0.01	
Type of AKI			0.08	-
Pre-renal(n=67)	46	21	0.02	
Renal(n=22)	19	3	0.14	
Post-renal(n=11)	10	1	0.15	
Refractory acidosis	22	23	<0.001	27.7(6-128)
Dialysis after admission			0.23	
No(25)				
Yes(22)	15	10		
	17	5		

Table 4: Factors with a significant effect on mortality outcome

Variables	Odds ratio	P value
age	1.10(1.02-1.18)	**0.007**
gender	6.67(0.16-0.36)	0.11
Shortness of breath	-	0.455
Altered sensorium	-	0.3
Intubation	18.2(2.7-126)	**0.003**

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Total bilirubin	1.15(0.99-1.35)	**0.062**
lactate	1.42(1-2.02)	**0.045**
Chronic liver disease	12.05(0.94-153.7)	**0.055**
Refractory acidosis	16.3(2.20-121.2)	**0.006**

Multivariate regression analysis is done for the factors having a significant effect on outcome. The factors namely Age, gender, intubation status, HRS, Total bilirubin levels, lactate, chronic liver disease, hyperkalemia, length of stay, AKIN stage and dialysis were selected for the analysis. The intubated patient had a higher adjusted odds ratio for death. (OR 18.2 (0.14-5.4), p=0.003). co-morbidity of CLD was found to have higher odds of death. (OR 12.05 (0.94-153.7), p=0.055).

DISCUSSION:

Our study was a prospective observational study with a sample size of 100. Cases presented with Acute kidney injury to the emergency department were recruited. The cases were followed up during the entire ED course to determine the presumptive aetiology and outcome. Our study looked into the age, gender, addiction, associated complaints and comorbidities. The majority of patients belong to the age group of 31- 50 years having a total of 42 cases. There were 15 cases with age more than 60 years. The mean age arrived in our study was 45.93Y + 15.79. These findings were consistent with the study by Sylvanus et al[14] done on 146 patients.

The gender distribution showed male predominance with a sex ratio of 1.5:1. Among the age group of more than 60 years, male and female cases were 10 and 5 respectively. Males (67) exceeded females (33) in our study similar to the study by Sylvanus et al[14] and Vikrant s et al[15] conducted in emergency departments of tertiary hospitals in Tanzania and India. This may be due to increased incidences of AKI among young alcoholics with CLD as a comorbid condition and sepsis patients with community-acquired infections. The associated symptoms and comorbidities with Acute kidney injury were also analyzed in our study. Symptoms commonly associated were found to be oliguria, anuria, pain abdomen, Vomiting, fever, shortness of breath, altered sensorium, chest pain, hematuria and seizures. These common presenting symptoms are consistent with findings by Safari et al.[16]

Hypovolemic status was assessed with blood pressure (SBP<90 mmHg) which was corrected with crystalloids which was the most common cause for Pre-renal AKI (9.4%) evident from the study Vikrant s et al[15]. Urine routine and microscopic examination were performed in all patients of which pus cells and RBC cells were found in 41 cases, urinary casts were found in 10 cases only and the most common casts were hyaline casts (prerenal) and muddy brown casts (ATN). Proteinuria was present in 24 cases. These findings are consistent with or deviate from findings by Martinez et al[17].

Urine sodium and urine creatinine levels were estimated in all patients to differentiate between pre-renal and renal AKI by using fractional excretion of sodium (FENA). FENA less than 1 is considered to be pre-renal AKI and more than 1 has renal AKI. A total of 67 cases,

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22 cases and 11 cases were found to be pre-renal, renal and post-renal respectively according to FENA. This finding is consistent with the study by Safari et al[16]. So, FENA less than 1 is a commonly use tool to differentiate pre-renal from renal AKI. Acute kidney injury is further classified into Pre-renal, Renal and Post-renal based on aetiology. We found pre-renal in (67), renal in (22), and post-renal in 11 cases out of a total of 100 cases. Our study showed more prerenal type than renal and post-renal type contrast with findings by Safari et al[16] who found pre-renal only in 40% of cases. This is because most of our study populations have CLD with complications and sepsis as aetiology and these groups of cases are common in our ED.

Chronic liver diseases (32 cases) were the most common comorbidities in our study population. Sepsis and hepatorenal syndrome were the aetiology of AKI in CLD cases. Complications of CLD include ascites (28), SBP (4), upper GI bleed (10) and hepatic encephalopathy (20) were predisposing risk factors for the development of AKI in this case. similar results found in the study by Gessololins et al[18]. Other causes of Pre-renal AKI were pancreatitis (6), diabetic ketoacidosis (5), cardio-renal syndrome (5) and tumour lysis syndrome (2). These findings of pre-renal causes of AKI are consistent with studies by Safari et al[16] and Scheuermeyer et al. 19.

Mortality in ED in our study was 25% (25). A higher number of deaths occurred in cases with co-morbidity of chronic liver disease 72% (18). Patients in the age group 31-50 years (44%) had slightly higher mortality than the age group more than 60 years (24%). 18 cases were discharged from ED and 57 cases were admitted to different departments. Our findings were consistent with the result of the study done by Safari et al[16] where they found 24.5% and 21.2% mortality respectively in AKI patients in ED.

The incidence of mortality was higher as the AKIN stage increased being 17 patients dying in stage 3 and 4 patients each in stage 1 and 2. Our finding is consistent with the study by Martinez et al[17]. Regarding dialysis, only 5 patients received dialysis in ED and 22 patients received dialysis after admission and there was a significant good outcome in patients who received dialysis. Out of the dialysis group (25),17 patients were discharged and 5 patients died which reflects chance of survival is higher among dialyzed patients. Our finding is consistent with the study by Kumar et al[20].

In our study population, 57 patients were requiring admission from emergency. The majority of the admissions were under gastroenterology (37%) and internal medicine department (35%). Several patients discharged directly after initial management in the emergency department were a total of 18. These findings are consistent with the study by Sylvanus et al.[14] We also looked into the duration of hospital stay. More than half of the patients stayed for 12-24 hours in the ED and 40% of patients stayed more than 24 hours in ED. The study by Challiner et al[21] found that patients with AKI had a length of stay almost three times higher than the non-AKI group. The study concluded that the prolonged ED stay before admission to ICU is related to the development of time-dependent complications and increased mortality. Again, the development of AKI in ED patients increased the boarding time in the ED and was responsible for overcrowding. We looked at the factors affecting the mortality outcome using univariate regression analysis. The co-variate analysis showed patients requiring urgent airway management with intubation had higher odds of death.

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CONCLUSION:

In our investigation, we discovered that HRS and sepsis are the most common causes of acute kidney injury. HRS remains a disorder with a high death rate due to the co-morbidity of CLD. Common and critical illnesses necessitate prompt diagnosis and treatments, such as dialysis. Understanding the etiologies and factors influencing mortality outcomes can help with patient treatment, preventing the onset of AKI, and avoiding unnecessary deaths.

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