IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 10 Ser.12 (October. 2020), PP 57-68
www.iosrjournals.org

Clinical Spectrum and Outcome of Patients with Acute Kidney Injury

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Abstract:
Background: *The incidence of acute kidney injury (AKI) has increased in recent years, both in the community and in hospital settings.In India, it is the most common renal emergency and as many as 1.5 percent of hospital admissions are referred to nephrology service for AKI.*
Materials and methods*: A prospective observational study was carried out in Regional Institute of Medical Sciences, Imphal, Manipur from October 2018 to September 2019 among 152 adult patients(both male and females) of aged ≥ 18 years who were admitted with AKI in Medicine ward or who developed AKI as an in-patient in any ward of RIMS Hospital. Data was analysed using IBM SPSS version 21 and p value <0.05 was taken as significant. The study was carried out after obtaining approval from the Institutional Ethical Committee (IEC), Regional Institute of Medical Sciences, Imphal.*
Results: Out of the 152 patients with AKI, 96 (60.5%) were male and 56 (39.5%) were female with a male to female ratio of 1.7:1. The age of the patients ranged from 18 to 76 years with a mean age of 44.68±13.13 years, the median age of the study population was 46 years.71 patients (46.7%) had associated co-morbidities of which diabetes mellitus and chronic liver disease were the commonest, the rest 81 patients (53.3%) did not have any co-morbidities. Fever (25.0%)was the most common presenting symptom followed by oliguria (21.7%) and pain abdomen (17.8%), acute tubular necrosis (61.9%) due to sepsis was the most common aetiology of AKI. Patients with community acquired AKI (CA-AKI) required renal replacement therapy (RRT), 51.5% more than patients with hospital acquired AKI (HA-AKI) and it was found to be statistically significant (p=0.005).The mean duration of hospital stay was 8.03±3.74 in patients with CA-AKI and 8.63±4.37 in patients with HA-AKI. The overall outcome was better in patients with CA-AKI showing full recovery in 73.3% and partial recovery in 77.5% of the patients, and this was found to be statistically significant (p=0.02)
Conclusion:*AKI was more common in the middle-aged group who had associated medical co-morbidities which predisposed them toAKI. Sepsis was the commonest cause of AKI leading to majority of patients presenting with feverand developing AKI in the community or during the course of hospital stay. Community acquired AKI had ashorter duration of hospitalization and an overall better outcome than hospital acquired AKI*
Key Word: *Acute kidney Injury (AKI), community acquired AKI,hospital acquired AKI (HA-AKI, renal replacement therapy (RRT).*

Date of Submission: 15-10-2020 Date of Acceptance: 31-10-2020

I. Introduction

AKI is defined as an abrupt (within 48 hours) reduction in kidney function based on an elevation in serum creatinine (sCr) level, a reduction in urine output (UO), the need for renal replacement therapy (RRT), or a combination of these factors.[1] The causes can be divided into three categories: pre-renal (caused by decreased renal perfusion, often because of volume depletion), intrinsic renal (caused by a process within the kidneys), and post-renal (caused by inadequate drainage of urine distal to the kidneys).[2]The incidence of AKI has increased in recent years, both in the community and in hospital settings.[3,4] Seven percent of hospitalised patients and about two-third of patients in intensive care unit develop AKI, often as part of multiple organ dysfunction syndrome.[2,4,5] It is associated with a high rate of adverse outcomes; mortality rate range between 25 and 80 percent, depending on the cause and the clinical status of the patient.[6,7] In India, it is the most common renal emergency and as many as 1.5 percent of hospital admissions are referred to nephrology service for AKI.[8,9]Geographical, etiological, cultural and economic variations determine the dissimilarities among patterns of AKI in different regions of the world.Detection of the incidence, aetiology and outcome of AKI is important for commencement of preventive and therapeutic strategies, identifying patients to avoid RRT as well as comparison of epidemiological studies for improved clinical decision making.[10]

Although numerous studies have described the clinico-etiological profile and outcome of patients developing AKI during hospitalisation [hospital-acquired AKI(HA-AKI)] and those presenting with AKI to the hospital[community-acquired AKI(CA-AKI)] as two different groups, there are very few studies which have

studied them together in one study. Studies on AKI were mostly centred within critically ill ICU patients and some specific subgroups of medical and surgical patients.[11]Moreover, literature on AKI is sparse from this north-eastern part of the country and there have been very few systematic studies conducted in this region. Hence, this prospective study was conducted considering the limited regional data available and the regional variations in the profile of AKI. Regional Institute of Medical Sciences (RIMS), Imphal is one of the largest tertiary care hospitals in the north-eastern region of India catering to a large segment of population from most states of north-eastern India.

II. Materials And Methods

This prospective observational study was carried out in Regional Institute of Medical Sciences, Imphal, Manipur from October 2018 to September 2019. Atotal of 152 adult subjects (both male and females) of aged ≥ 18 years were enrolled in this study

Study Design: Prospective observationalstudy.
Study Location: Regional Institute of Medical Sciences, Imphal, Manipur

Study Duration: One year from October 2018 to September 2019.
Sample Size: 152 patients

Inclusion criteria:
1.Patients 18 years and above, regardless of gender whofulfilledthe RIFLE criteria of AKI.

Exclusion criteria:
1.Patients with pre-existing renal disease.
2.Patients who developed acute on chronic kidney disease.
3.Patients who were unwilling to participate in the study.

Procedure and methodology:

Information was collected using a well designed questionnaire after obtaining a valid informed consent. Patients were subjected to detailed history and thorough clinical examination.Laboratory investigations like complete haemogram, urinalysis, kidney function test, liver function test, bacteriological cultures, ultrasonography of abdomen and renal biopsy whenever necessary were done to confirm the diagnosis.After confirming the diagnosis, the patients were classified into CA-AKI and HA-AKI.All patients were followed up till the time of discharge or death whichever was earlier (maximum of 1 month duration).Patients were classified into one of the RIFLE class based on peak serum creatinine (sCr) level. RRT was instituted according to case specific clinical and laboratory indications.

Working definition

- AKI was defined using the RIFLE classification[13] based onsCr values at admission (CA-AKI) or during in-patienthospitalization (HA-AKI)
- Volume loss was defined as any obvious cause of volume depletion (e.g. vomiting, diarrhoea, haemorrhage) with loss of skin turgor
- Renal hypoperfusion was defined as documented decline in blood pressure to <90/60 mm Hg, evidence of congestive heart failure,signs of volume depletion and improvement with appropriate treatment.
- Sepsis was defined as two or more of the following as a result of proven or suspected infection: temperature >38 or <36 degree celcius, heart rate >90/min, respiratory rate >20/min and total leucocyte count >12,000/mm^3 or <4000/mm^3 or >10% band forms
- Nephrotoxic drug was defined as a drug with known or unknown nephrotoxic potential if received by a patient for a minimum of two days prior to the defined increase insCr level
- Urinary tract obstruction was defined as evidence of obstruction on imaging studies and improvement in renal function with relief of the obstruction
- Acute tubular necrosis was considered if renal functions did not improve after correction of possible pre-renal causes and when vascular, interstitial, glomerular and obstructive etiologies had been ruled out
- Acute glomerulonephritis was considered when evidenced by histopathological examination.
- Baseline sCr was defined as lowest sCr level during admission. Simultaneously it was also estimated using the Modification of Diet in Renal Disease (MDRD) equation[39], assuming a baseline GFR of 75 ml/min/1.73m^2
- Community acquired AKI (CA-AKI) was defined as those patients who had normal renal function in the past (no documented pre-existing renal disease) and admitted to hospital with AKI apparent on their first serum creatinine (sCr) measured within 24 hours of admission.

- Hospital acquired AKI (HA-AKI) was defined as those patients who had no AKI on admission and developed AKI apparent on their sCr measured after 24 hours of hospital admission. Their baseline sCr was taken as sCr measured at the time of admission.
- RRT was defined by intermittent haemodialysis or acute peritoneal dialysis initiated in the dialysis unit or ICU based on clinical or laboratory indications.

Patients were evaluated on the following outcome measures:

- Complete recoverywas defined as lowering of sCr to <1.2 mg/dl following appropriate treatment
- Partial recovery was defined as decrease in sCr (but still >1.2 mg/dl) at the time of discharge
- RRT dependent was defined as those who had abnormal renal functions (sCr>1.2 mg/dl) and required continued RRT even after discharge
- In-hospital death

Statistical analysis:

Data was entered in Microsoft Excel 2007 to describe characteristics of the study population. IBM SPSS Statistics 21 for windows (IBM corp. 1995,2012) was used to perform statistical analysis.Microsoft Word and Excel 2007 were used to generate tables and charts.Descriptive statistics like mean, SD, proportion and percentage was used. Chi square test was used to test the significance between proportions. Independent T-test was used to test the significance between two means between the groups. A p value of <0.05 was considered significant.

III. Result

During the 1 year period of the present study from October 2018 to September 2019, 152 patients with AKIwere identified who were hospitalized in various wards of RIMS hospital, Imphal.

As shown in Table 1, the age of the patients ranged from 18 to 76 years with a mean age of 44.68±13.13 years. The median age of the study population was 46 years, the most common age group was 41-50 years (33.5%) in both sexes. Out of the 152 patients with AKI, 96 (60.5%) were male and 56 (39.5%) were female with a male to female ratio of 1.7:1

Table 1: Age and sex distribution of the patients with AKI

Age group	Male (n=96)	Female (n=56)	Total (%)
18 – 30	15	10	25 (16.4)
31 – 40	17	13	30 (19.7)
41 – 50	30	21	51 (33.5)
51 – 60	22	9	31 (20.4)
61 – 70	7	1	8 (5.3)
71 – 80	5	2	7 (4.6)

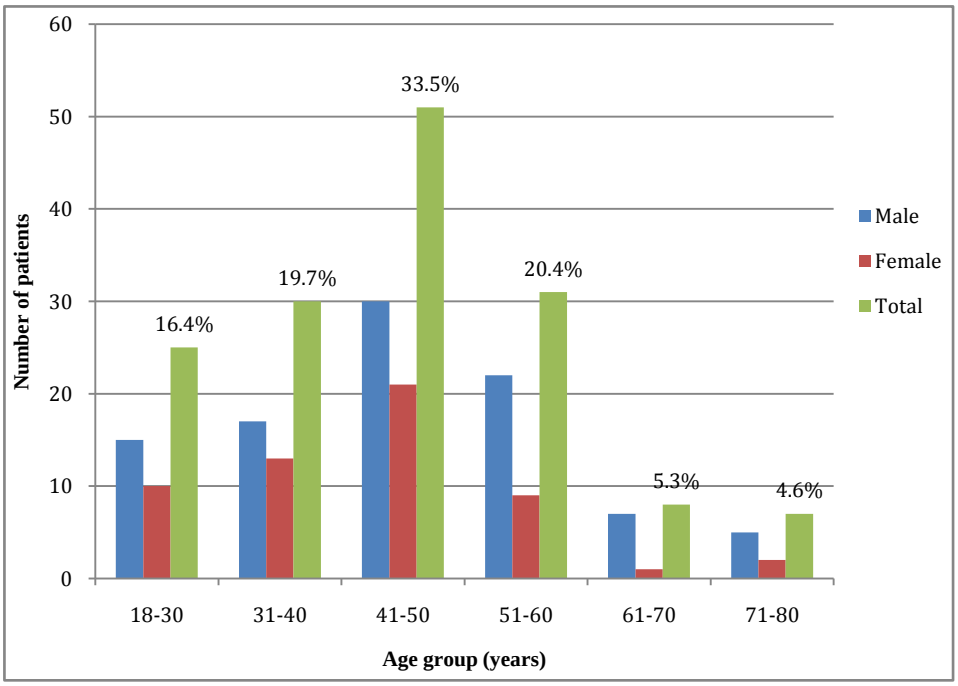

Table 2 shows, out of 152 patients, 71 patients (46.7%) had associated co-morbidities of which diabetes mellitus and chronic liver disease were the commonest. The rest 81 patients (53.3%) did not have any co-morbidities.

Table 2: Associated co-morbidities in patients with AKI

Co-morbidity	Number of patients (%)
Hypertension (HTN)	7 (4.6)
Diabetes mellitus (DM)	20 (13.2)
HTN + DM	6 (3.9)
Heart failure	7 (4.6)
Chronic obstructive airway disease (COAD)	7 (4.6)
Chronic liver disease (CLD)	15(9.9)
Cerebrovascular disease (CVA)	4 (2.6)
Cancer	3 (2.0)
Connective tissue disease	2 (1.3)
No co-morbidities	81 (53.3)

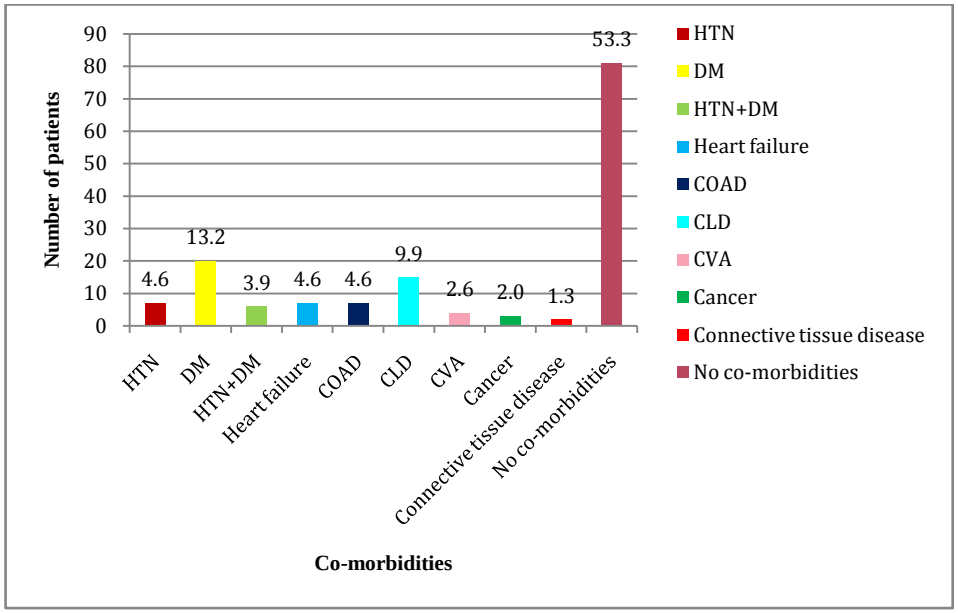

Table 3 shows fever (25.0%)was the most common presenting symptom followed by oliguria (21.7%) and pain abdomen (17.8%). Other presenting symptoms were diarrhoea, dyspnoea, altered sensorium, jaundice, soft tissue infection and anasarca.

Table 3: Main presenting symptoms of patients with AKI

Presentingsymptom	Number of patients (%)
Fever	38 (25.0)
Diarrhoea	15 (9.9)
Pain abdomen	27 (17.8)
Oliguria	33 (21.7)
Dyspnoea	14 (9.2)
Anasarca	4 (2.6)
Altered sensorium	8 (5.3)
Jaundice	9 (5.9)
Soft tissue infection	4 (2.6)

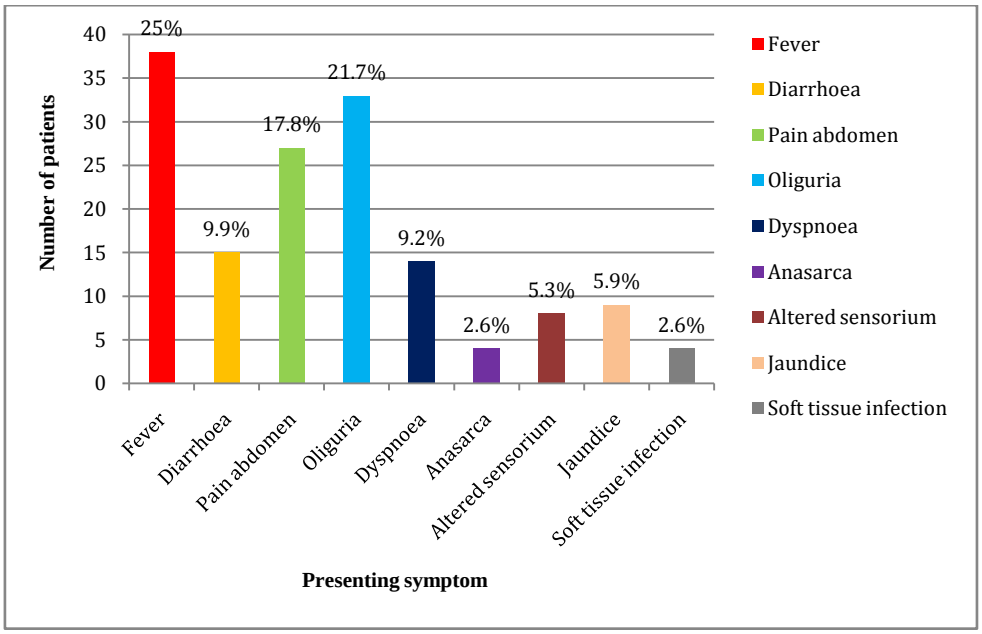

Table 4 shows acute tubular necrosis (61.9%) due to sepsis was the most common aetiology of AKI among the patients studied. Volume loss and hypoperfusion (25.6%) due to acute gastroenteritis, followed by urinary tract obstruction (9.9%) and glomerulonephritis (2.6%) were the other aetiologies of AKI.

Table 4: Aetiology of AKI

Aetiology of AKI	**Number of patients (%)**
Volume loss or hypoperfusion	39 (25.6)
• Acute gastroenteritis	16 (10.5)
• Hepatorenal syndrome	12 (7.9)
• Cardiorenal syndrome	11 (7.2)
Acute tubular necrosis	94 (61.9)
• Sepsis	50 (32.9)
• Nephrotoxin-induced	12 (7.9)
• Acute pancreatitis	6 (3.9)
• Burns	3 (2.0)
• Scrub typhus	8 (5.3)
• Paraquat poisoning	9 (5.9)
• Methanol poisoning	3 (2.0)
• Multiple myeloma	3 (2.0)
Urinary tract obstruction	15 (9.9)
Glomerulonephritis	4 (2.6)

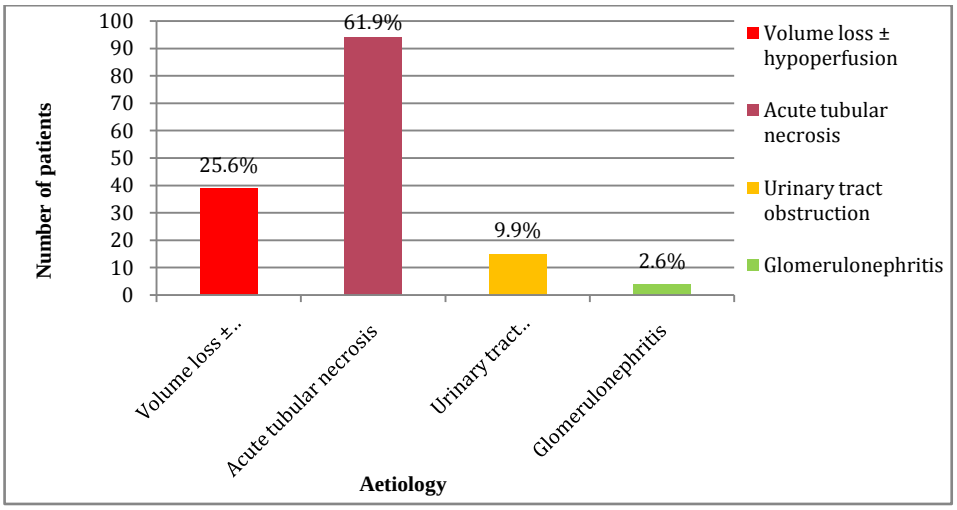

Table 5 shows source of sepsis in patients with AKI, out of 50 patients with septic AKI, 32% were due to pneumonia, 30% were due to genitor-urinary tract infection, 22% due to peritonitis and 10% were due to cellulitis. In the rest 6%, the source of sepsis could not be localized.

Table 5: Source of sepsis in patients with AKI

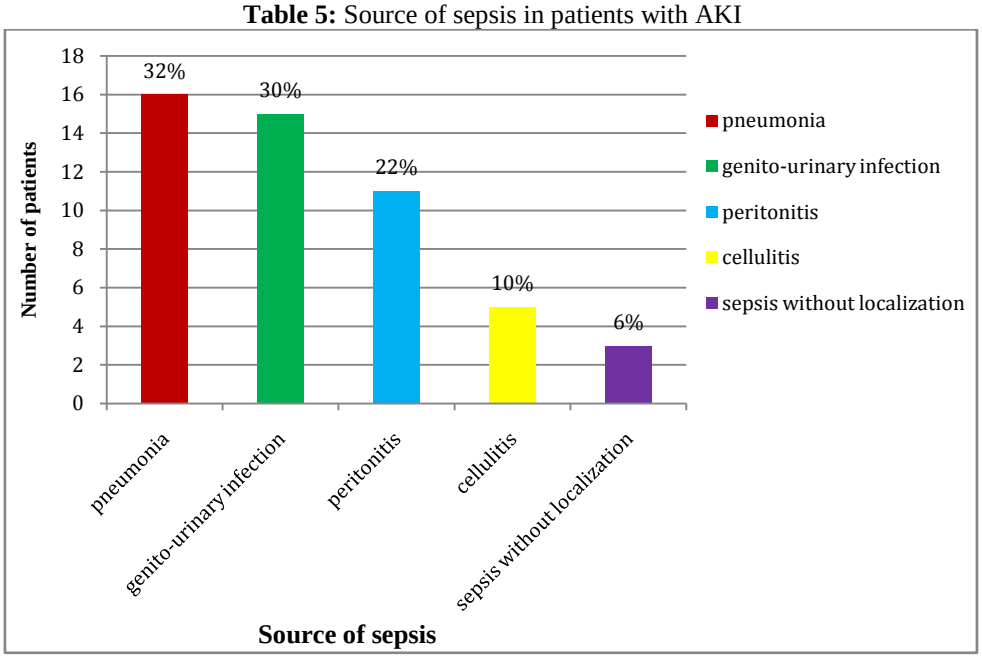

Table 6 shows distribution of AKI patients into infective and non-infective aetiologies. An infective cause was associated with 48.7% of the patients with AKI while the rest 51.3% were not related to infections

Table 6: distribution of AKI patients into infective and non-infective aetiologies

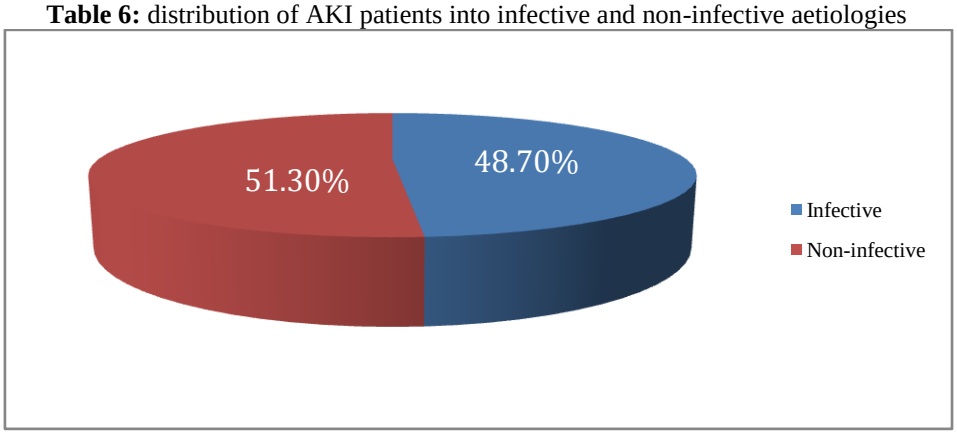

Table 7 shows responsible nephrotoxic agents in AKI patients. Nephrotoxin-induced AKI occurred in 16 patients of which tenofovir (33.3%) was the most common offending agent followed by aminoglycosides, herbal medicines and contrast agent . Other agents responsible for AKI were amphotericin B and rifampicin

Table 7: Responsible nephrotoxic agents in patients with AKI

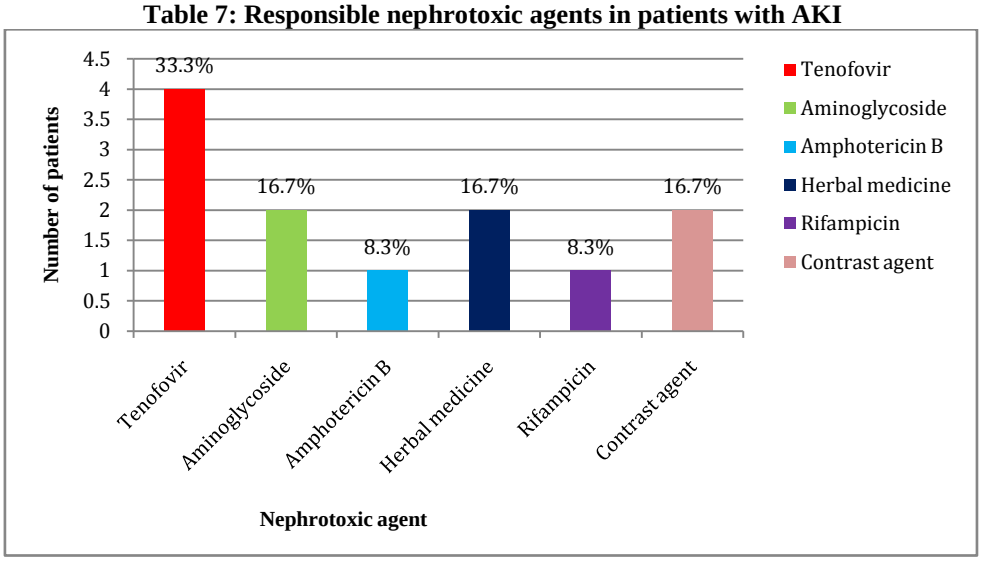

Table 8 shows RIFLE class in patients with AKI, 42.1% of the patients were in class I while 28.9% and 27.6% were class F and class R respectively, and 2 patients were in class F

Table 8: RIFLE classification in patients with AKI

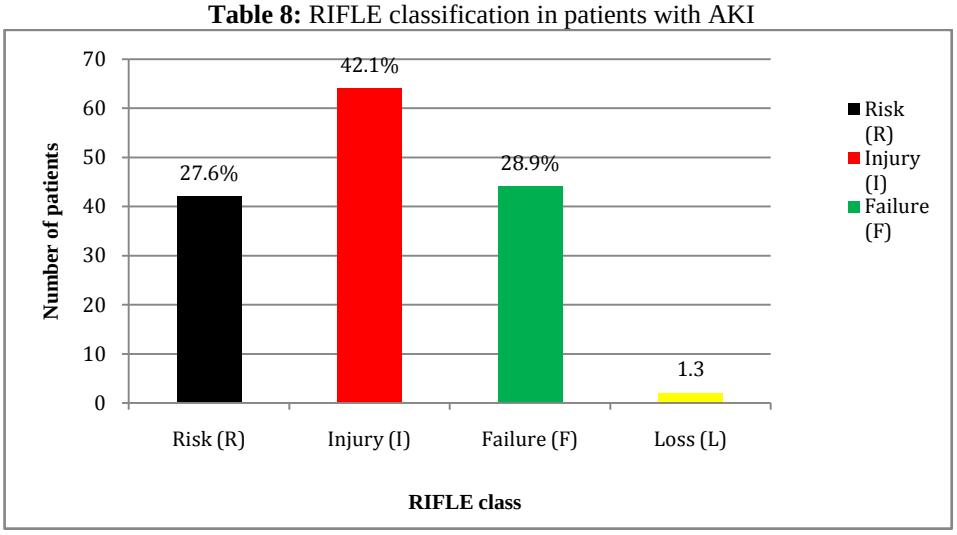

Table 9 shows causes of AKI on anatomical basis.63.2% of AKI were due to intrinsic renal insult while 27% and 9.9% were due to pre-renal factors and post-renal obstruction respectively.

Table 9: Cause of AKI on anatomical basis in patients with AKI

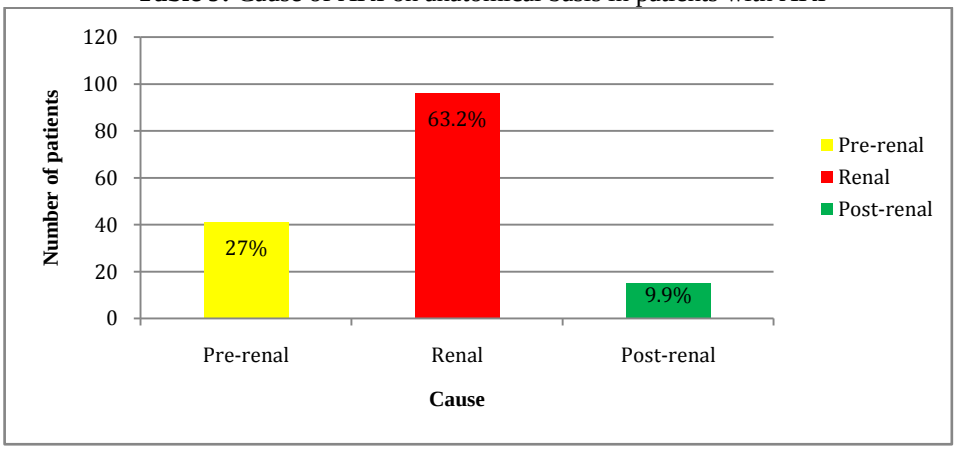

Table 10 shows clinical entities of AKI. Majority of the patients (71%) were hospitalized primarily due to AKI (CA-AKI) while the rest (28.9%) acquired AKI in hospital after admission for other reasons (HA-AKI).

Table 10: Clinical entities of AKI

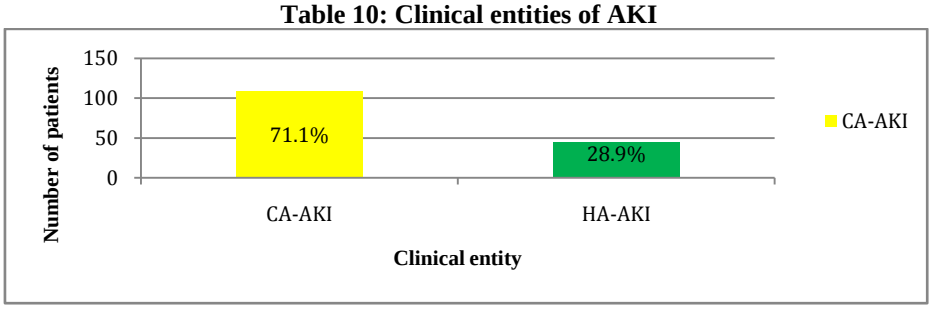

Table 11 shows mean age of patients with CA-AKI was 44.65±12.3 and in patients with HA-AKI was 44.77±15.15. The male patients formed the majority in both groups (p=0.77).

Table 11: Demographic features of patients with CA-AKI versus HA-AKI

Parameter	CA-AKI (%)	HA-AKI (%)	p-value
Mean age (years)	44.65±12.3	44.77±15.15	0.95
Male	69 (71.9)	27 (28.1)	0.77
Female	39 (69.6)	17 (30.4)	

Tablle 12 shows patients with CA-AKI required RRT (51.5%) more than patients with HA-AKI and it was found to be statistically significant (p=0.005).

Table 12: Comparison between CA-AKI and HA-AKI on need for RRT

Mode of treatment	CA-AKI(%)	HA-AKI(%)	p-value
RRT	17 (51.5)	16 (48.5)	0.005
Conservative	91 (76.5)	28 (23.5)	

Table 13 shows the mean duration of hospital stay was 8.03±3.74 in patients with CA-AKI and 8.63±4.37 in patients with HA-AKI. Majority of CA-AKI patients were hospitalized for a shorter duration of less than 10 days (76.9%) while 41.7% of HA-AKI patients were hospitalized for a longer duration of more than 10 days(p=0.02).

Table 13: Comparison between CA-AKI and HA-AKI regarding duration of hospital stay

Hospital stay	CA-AKI(%)	HA-AKI(%)	p-value
Mean duration (days)	8.03±3.74	8.63±4.37	0.38
Up to 10 days	80 (76.9)	24 (23.1)	0.02
More than 10 days	28 (58.3)	20 (41.7)	

Table 14 shows comparison of outcome between patients with CA-AKI and HA-AKI. The overall outcome was better in patients with CA-AKI showing full recovery in 73.3% and partial recovery in 77.5% of the patients, and this was found to be statistically significant (p=0.02).

Table 14: Outcome of patients with CA-AKI versus HA-AKI

Outcome	CA-AKI(%)	HA-AKI(%)	p-value
Complete recovery	62 (77.5)	18 (22.5)	0.02
Partial recovery	22 (73.3)	8 (26.7)	
Dialysis dependent	12 (75)	4 (25)	
Death	12 (46.2)	14 (53.8)	

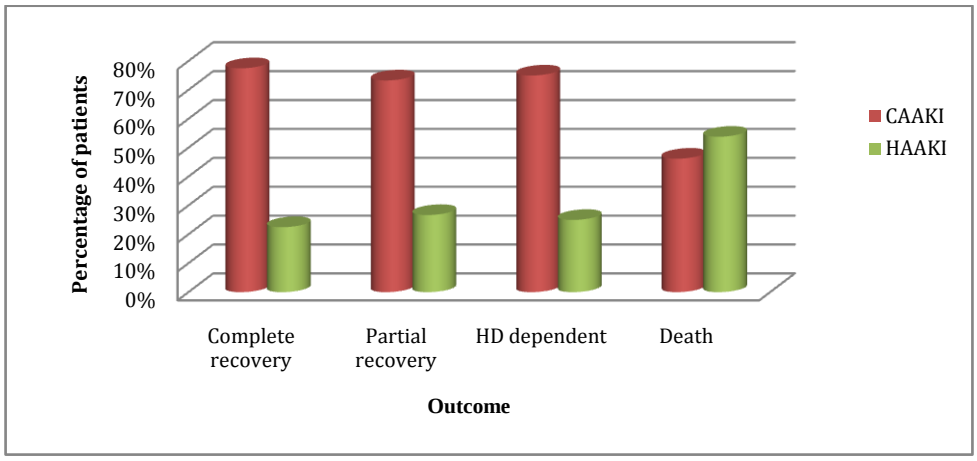

Table 15 shows comparison of mortality between patients with CA-AKI and HA-AKI, mortality was significantly higher in patients with HA-AKI (53.8%) and it was statistically significant, p=0.002.

Table 15: Comparison of mortality between CA-AKI and HA-AKI

Mortality in AKI	CA-AKI (%)	HA-AKI (%)	p-value
Survivors	96 (76.2)	30 (23.8)	0.002
Non-survivors	12 (46.2)	14 (53.8)	

IV. Discussion

The study was carried out in 152 patients with AKI defined as per the RIFLE criteria suggested by KDIGO Clinical Practice Guideline for Acute Kidney Injury, who were hospitalized in the various wards of RIMS hospital, Imphal during the period from October 2018 to September 2019 to determine the clinical spectrum, aetiology and outcome of patients with AKI.

Increases in serum creatinine in non-critically ill hospitalized patients are common and carry heightened morbidity and mortality. This has been attributed to the older age and increased number of co-

morbid conditions present in hospitalized patients with AKI.[14,15,16] Prospective studies describing the clinical spectrum, aetiology and assessing the outcome of patients with CA-AKI and HA-AKI are limited.

Out of the 152 patients with AKI in this study, 96 (60.5%) were male and 56 (39.5%) were female with a male to female ratio of 1.7:1. Similar observations were made by Al-Homrany M[18] in which out of 150 patients with AKI, there were 88 (59%) males and 62 (41%) females, thus showing a greater male preponderance to AKI. In another study which included 618 patients, 59% were males while 41% were females thus showing similar results with the present study.[17]

The mean age of the patients was 44.68±13.13 years and the median age was 46 years in the present study. The most common age group was 41-50 years in both sexes. A study conducted by GuradkarS et al[20] in 144 patients with AKI found the mean age to be 48±18.24 years. However, another study conducted on 150 patients with AKI, found the mean age of the patients to be higher at 58.9±22.5 and 57.3% were 60 years and above.[18] Thus, we found AKI to be comparatively more common in the middle age group in the present study.This could be explained by the fact that there is high prevalence of associated co-morbidities in this group of patients thereby predisposing them to AKI.

Associated co-morbidities were present in almost half of the patients (46.7%) in the present study of which diabetes mellitus (13.2%)and chronic liver disease (9.9%) were the commonest. The other existing co-morbidities were heart failure, COAD, CVA, cancer and connective tissue disease. Associated co-morbidities can lead to adverse renal outcomes in the elderly age group and makes them a high risk group for AKI.[21]A previous study had reported extensive co-morbidities in patients with AKI with 24.2% having diabetes mellitus, 31.6% having hypertension, 17.6% having heart failure and lower prevalence of chronic liver disease (7.4%).[17]

Fever (25%) was the most common presentingsymptom in the present study followed by oliguria (21.7%), pain abdomen (17.8%) and diarrhoea (15%). Other presenting symptoms were altered sensorium, jaundice, dyspnoea, cellulitis and anasarca. A recent study by Nagamani R et al[25] similarly reportedfever to be one of the commonest presenting symptom of AKI being present in 58% of the cases. This may be explained by the high rate of septic AKI which occurred in both studies. Oliguria was also reported by Prakash J et al[22]to be one of the commonest symptoms of AKI being present in 85.2% of the cases.

Acute tubular necrosis (ATN) (61.9%) was the commonest reason for patients developing AKI in the present study. This was due to sepsis in majority (32.9%) of the cases resulting mainly from pneumonia (10.5%), genitor-urinary tract infection (9.9%) and peritonitis (7.2%). A similar report was observed in a study conducted in 150 patients where the primary cause of AKI was ATN in 62.5% of the cases out of which sepsis was responsible for 24.7% of them.[18] Another study found urinary tract infection (38%) as commonest cause of sepsis followed by pneumonia (31%) and soft tissue infections (25%).[23] Nephrotoxic drugs contributed to 7.9% of cases due to ATN in the present study of which tenofovir (as part of anti-retroviral therapy for HIV infection which is quite prevalent in this part of the country) was the commonest offending drugfollowed by aminoglycosides, contrast and herbal medicines. A previous study observed nephrotoxic drugs (38%) as the commonest factor responsible for AKI followed by sepsis (35%).[23] A significant number of patients in the present study developed AKI due to alleged paraquat poisoning (8%), a herbicide. Thiscausative factor has not been reported previously in other research studies in this part of the country whichled to multi-organ failure and worse outcome in these patients. Scrub typhus (5.3%) was also responsible for anumber of AKI cases in the present study. In a recent study, AKI was seen in 41% of patients with tropical acute febrile illness with scrub typhus being one of the commonest causes.[24] Volume loss and hypoperfusion as a result of acute gastroenteritis (10.5%), hepatorenal (7.9%) and cadiorenal syndromes (7.2%) were observed in the present study. Previous studies have similarly reported these causes as a common contributing factor leading to AKI.[25,20,26] Also, considerable number of AKI cases due to urinary tract obstruction (9.9%) as a consequence of nephrolithiasis (10 patients) and external compression by tumours (2 patients with carcinoma bladder and 4 patients with carcinoma cervix) were seen in this study.Dietaryfactors, inherited metabolic disorders and fluid losses contribute to the increased incidence ofnephrolithiasis in the Asian population.[27] A recent study conducted by GoswamiS et al[12] in 500 patients with AKI, found urinary tract obstruction as a cause of AKI in 9% of the cases showing similar results with the present study.

Based on the peak serum creatinine level, the patients with AKI in the present study were classified using the RIFLE criteria. Majority of the patients were in RIFLE class I (42.1%) followed by RIFLE class F (28.9%) and RIFLE class R(27.6%). 2 patients could not recover and went into RIFLE class L with persistent renal dysfunction for more than 4 weeks.A previous study observed contrasting results in majority (58%) were in RIFLE class R and lesserpatients in RIFLE class I(17%) but a comparable number of patients were in RIFLE class F (23%).[28] This could be explained by the fact that patients in the present study perhaps presented to the hospital at a late and more advanced stage of the primary disease.

In this study, intrinsic renal insult (63.2%) was accountable for majority of the AKI cases, while pre-renal factors and post-renal obstruction accounted for 27% and 10% of the cases respectively. A similar result was reported by Said R[30] in a study including 215 patients with AKI in which intrinsic renal injury

was responsible for 58% of cases followed by pre-renal factors (28%) and post-renal obstruction (14%).Kapadia MP et al[28] also reported AKI due to intrinsic renal insult (66%), 26% due to pre-renal factors and rest 8% were due to post-renal obstruction thus showing similar results with this study. Patients with AKI were classified into two entities:CA-AKIas those patients who were admitted primarily due to AKI and HA-AKI as those patients who acquired AKI during the course of their hospital admission for other reasonsand compared against few important parameters. It was found that 71.1% of patients had CA-AKI and the rest 28.9% developed HA-AKI and male patients constituted the majority in both the groups. The mean age of the patients in CA-AKI was 44.65±12.3 and in HA-AKI it was 44.77±15.15 which was comparable between the two groups. A previous study reported similar observations wherein CA-AKI occurred in 78.6% of patients and 21.3% in HA-AKI with 44 years and 48 years as mean age in CA-AKI and HA-AKI respectively and males forming the majority of patients in both groups.[36 23] The relatively higher incidence of CA-AKI in the present study may be due to the lower incidence of HA-AKI as a result of the improvement in present health care systemand the availability of effective treatment modalities.

Further, the severity of AKI in patients with CA-AKI and HA-AKI in terms of need for RRT and the duration of hospital stay were compared. Altogether, 33 patients (21.7%) needed RRT in the present study, out of which 28 patients underwent haemodialysis and 5 underwent acute peritoneal dialysis. It was found that patients with CA-AKI needed RRT more than HA-AKI patients (51.5% vs. 48.5%, p=0.005). A recent study in 500 patients with AKI observed that RRT was needed in 25% of the patients in which 30% of CA-AKI patients needed RRT and 19% in HA-AKI patients.[12] CA-AKI patients requiring RRT more than HA-AKI patients in the present study could be explained by the fact that patients with CA-AKI were sicker and critically ill at the time of admission compared to HA-AKI patients. The mean duration of hospital stay of patients in this study was 8.2±3.9 days and was almost same in both groups (p=0.38). A previous study in 642 patients observed that mean duration of hospital stay to be 13.98 days and it was almost same in both groups (p=0.19).[23] Another recent study reported a shorter length of hospital stay in patients with CA-AKI compared to HA-AKI (7 vs. 15, p<0.001).[14]

This study, shows an overall favourable outcome, with complete recovery being seen in 77.5% of the patients with CA-AKI who showed quick recovery and had a better outcome when compared to HA-AKI patients despite sustaining more severe AKI (p=0.02). Mortality rate was 53.8% in patients with HA-AKI compared to 46.2% in CA-AKI (p=0.002). Both GoswamiS et al[12] and Biradar V et al[23] reported complete recovery in 59% of CA-AKI patients and mortality rate of 51% in HA-AKI. Another study reported complete recovery in 64.9% of CA-AKI patients and mortality rate of 51.6% in HA-AKI.[18] The fact that higher rate of complete recovery in patients with CA-AKI was seen in our study could be explained by the fact that CA-AKI patients were recognized early and referred to nephrologists for timely appropriate management. Thus, more severe CA-AKI may have been more appropriately managed leading to better outcomes. A study in Scotland demonstrated that inadequacies in recognition and management of HA-AKI were particularly high in patients with mild AKI.[29]

V. Conclusion

Acute kidney injury (AKI) was more common in the middle-aged group who had associated medical co-morbidities which predisposed them toAKI. Sepsis was the commonest cause of AKI leading to majority of patients presenting with feverand developing AKI in the community or during the course of hospital stay. Community acquired AKI had ashorter duration of hospitalization and an overall better outcome than hospital acquired AKI. Nevertheless, frequent epidemiological studies from all parts of country are needed to devise preventive and management strategies for this condition to limit the risks to susceptible individuals and early recognition and timely nephrology intervention can lead to a better outcome.

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Dr. Stephen Lungkuliangpou Daimei, et. al. "Clinical Spectrum and Outcome of Patients with Acute Kidney Injury." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(10), 2020, pp. 57-68.