

Original Research Article

A PROSPECTIVE STUDY ON DEMOGRAPHY, CLINICAL PROFILE, DETERMINANTS AND OUTCOME IN PATIENTS DIAGNOSED WITH ACUTE KIDNEY INJURY IN A TERTIARY CARE

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ABSTRACT

Background: Acute kidney injury (AKI), is a syndrome with a wide variety of aetiologies and pathophysiologic processes. The observed incidence of AKI was eight per 1000 admissions as per recent study in India. Given the complexity and diversity of the aetiology of AKI, it can be challenging to diagnose AKI, with no direct pharmacologic therapies for AKI, prevention is of paramount importance. An understanding of the potentially modifiable risk factors that may be unique to different patient groups is critical to the prevention of AKI. Hence this study was undertaken to understand the demography of patients with AKI which would guide clinicians for early diagnosis and appropriate care.

Materials and Methods: A prospective study was done in 200 adult patients of either sex diagnosed with AKI in a tertiary care during April 2023 to April 2025. Institutional ethical committee clearance and patients' consent was obtained. KDIGO criterion was used for defining AKI. All patients were followed for 3 months from enrolment and determinants of mortality were assessed. Outcome was assessed as complete recovery, partial recovery, dialysis dependency and death. Evaluation included a detailed history taking (includes past medical and/or surgical history, signs of azotemia (nausea and vomiting), altered sensorium, or other symptoms associated with AKI), and laboratory investigations. Hemodialysis was conducted as and when required. Chi square test and students t test was used with P<0.05 considered as statistically significant.

Results: Mean age was 52.5 and range 18 – 75 years. Males were 60.5%. Residence was rural in 55.5%. Severity of AKI as per KDIGO criteria in stage 1, 2, and 3 were 17.5%, 31.5% and 51% respectively. Community acquired AKI and Hospital acquired AKI was seen in 91% and 9% patients. Patient outcome was assessed as complete recovery, dialysis dependency, partial recovery in 61%, 18%, 9% and death in 12% patients respectively.

Conclusion: AKI is more common in elderly. Sepsis is the commonest cause of AKI. AKI is largely a CA-AKI and the lesser percentage is due to HA-AKI. Mortality is associated with hypertension, diabetes mellitus, CAD, CLD, lower SES and higher stages of AKI as per KDIGO criteria.

Keywords: Acute kidney injury, KDIGO, Demography, mortality.

INTRODUCTION

Acute kidney injury (AKI), previously called acute renal failure (ARF), denotes a sudden reduction in

kidney function, as measured by glomerular filtration rate (GFR).^[1-3] AKI is a syndrome with a wide variety of aetiologies and pathophysiologic processes.^[4] It results in the retention of urea and other nitrogenous

waste products and in the dysregulation of extracellular volume and electrolytes.

The observed incidence of AKI was eight per 1000 admissions as per recent study in India. About 92.2% had community-acquired AKI (CA-AKI), and in 7.8% it was hospital-acquired AKI (HA-AKI).^[5] Each episode of AKI is associated with long-term adverse outcomes, including cardiovascular complications, chronic kidney disease and end-stage renal disease with high mortality, morbidity, and thus a major public health concern.

The International Society of Nephrology's "0 by 25" initiative is to reduce preventable deaths from AKI to zero by 2025 which is not achievable in low- and middle-income countries, such as India, possibly due to a lack of data and measures to tackle this urgent public health issue.^[6]

There is a limited data on the incidence of AKI worldwide, also the data vary widely across studies depending on the setting and the populations investigated. Data on the epidemiology of AKI in south India, in particular, are limited.^[7] In low-resource settings like India, AKI recognition, diagnosis and treatment initiation are often delayed or inadequate, leading to avoidable increases in mortality, severe complications and cost.

The Indian Society of Nephrology (ISN) started the AKI registry in 2016 to capture data regarding the epidemiology of AKI, its socioeconomic determinants, and the immediate and 3-month follow-up outcomes of AKI from tertiary care hospitals in different parts of the country. Still suboptimal early recognition and care of patients with AKI impede their recovery and lead to high mortality, which highlights unmet needs for improved detection and diagnosis of AKI and for efforts to improve care for these patients. Given the complexity and diversity of the aetiology of AKI, it can be challenging to diagnose AKI, with no direct pharmacologic therapies for AKI, prevention is of paramount importance. An understanding of the potentially modifiable risk factors that may be unique to different patient groups is critical to the prevention of AKI.^[8] Hence this study was undertaken to understand the demography of patients with AKI which would guide clinicians for early diagnosis and appropriate care.

MATERIALS AND METHODS

A prospective study was done in adult patients of either sex diagnosed with AKI in a tertiary care during April 2023 to April 2025. Institutional ethical committee clearance was obtained.

Sample size was calculated using single proportion formula for finite population. Where, Z_{α} is the standard normal deviate, 2.576 at 99% confidence interval.

As per study by Vikranth S et al AKI cases form almost 0.8% of all cases attending tertiary care.^[5]

Hence P = Prevalence is 0.8%. i.e $P = 0.8$, $100-P = (100-0.8) = 99.2$

e = allowable error was 2%

N = study population (Patients admitted during the study period) = 120000,

Sample size(n) formula for single proportion finite population = $((z^2 \times p(1-p))/e^2) / (1+(z^2 \times p(1-p))/(e^2 N))$

Sample size(n)= $(((2.57)^2 \times 0.8(100-0.8)) / (0.02)^2) / (1+((2.57)^2 \times 0.8(100-0.2)) / ((0.02)^2 \times 120000))$

Assuming that 0.8% of the subjects in the population have AKI, and a population size of 120000, the study would require a sample size of, 164 for estimating the expected proportion with 2% absolute precision and 99% confidence.

Considering 15% follow up sample size was rounded up to 200

Patients who were diagnosed with AKI were included after obtaining written informed consent using purposive sampling method. KDIGO criterion was used for defining AKI. According to KDIGO, AKI is the presence of any of the following:^[9]

- Increase in serum creatinine by 0.3 mg/dL or more (26.5 μ mol/L or more) within 48 hours
- Increase in serum creatinine to 1.5 times or more than the baseline of the prior 7 days
- Urine volume less than 0.5 mL/kg/h for at least 6 hours

Staging of AKI was based on the following: an elevation of serum creatinine level $1.5-1.9 \times$ baseline or ≥ 0.3 mg/dl elevation (stage 1); elevation of serum creatinine $2.0-2.9 \times$ baseline (Stage 2); and $3.0 \times$ baseline or increase in serum creatinine to ≥ 4.0 mg/dl or the initiation of renal replacement therapy (Stage 3).^[10]

Those with previously documented chronic kidney disease (glomerular filtration rate [GFR] <60 ml/1.73 m², proteinuria, and abnormal renal imaging), solid organ transplant recipients, and history of receiving renal replacement therapy before admission to ICU and readmissions to ICU were excluded from the study. AKI at the time of admission or within 48 h of admission was considered as Community acquired AKI (CAAKI). AKI developing after 48 h of hospitalization was considered as hospital acquired (HAAKI). All patients were followed for 3 months from enrolment.^[10] Outcome was assessed as complete recovery, partial recovery, dialysis dependency and death. Complete recovery (CR) was defined as urine output of >1 ml/kg/h with serum creatinine <1.4 mg/dl. Partial recovery (PR) was defined as fall in serum creatinine by $\geq 50\%$, urine output ≥ 0.5 ml/kg/h with dialysis independence for patients who were started on dialysis. Dialysis dependency was defined as the need for any form of dialysis for >28 days.^[6,11]

Evaluation included a detailed history taking (includes past medical and/or surgical history, signs of azotemia (nausea and vomiting), altered sensorium, or other symptoms associated with AKI),

and laboratory investigations. Hemodialysis was conducted as and when required.

Statistical analysis: The categorical variables were expressed as frequencies and percentages, and continuous variables as mean and standard deviation. The data were analyzed using statistical package for the social sciences (SPSS) version 20. Chi square test and students t test was used with $P < 0.05$ considered as statistically significant.

RESULTS

Majority of patients with AKI belonged to the age group of 61-70 years (24.5%), followed by 51- 60 years (21%), > 70 years (17.5%) and 41-50 years (16%). Mean age was 52.5 and range 18 – 75 years. Males were 60.5%. Residence was rural in 55.5%. SES I,II and III in 25%, 34.5% and 33% respectively. Hindus, Muslims and Christians were 62%, 28% and 10% respectively. Comorbidities identified were hypertension (16%), diabetes mellitus (13.5%), chronic liver disease (9.5%), coronary artery disease (11%) and others (includes thyroid disorder/0.5%, asthma 1%). Tobacco consumption and alcohol abuse was seen in 27% and 38% of patients with AKI. [Table 1]

Commonest symptom was fever in 40.5% followed by breathlessness in 32% and oedema in 27%, nausea and vomiting in 17% and 15%. Other symptoms reported were burning micturition, haematuria, loin pain, rashes, joint pain, dry cough, dysuria, loose stools, seizures and trauma. [Figure1]

Lab investigations showed, raised Serum creatinine and BUN in 100% patients, severe anaemia in 10.5%, leucocytosis in 53%, thrombocytopenia in 27%, hyperbilirubinemia in 19%, raised AST and ALT in 22.5%, hyperphosphatemia (Serum phosphate >6 mg/dl) in 21%, hypoalbuminemia (serum albumin <3 g/dl) in 27%, hypocalcaemia (serum calcium <8.4 mg/dl) in 30.5%, grade 1 renal parenchymal changes on Ultrasound in 22%, dyselektrolytaemia in 45.5%.

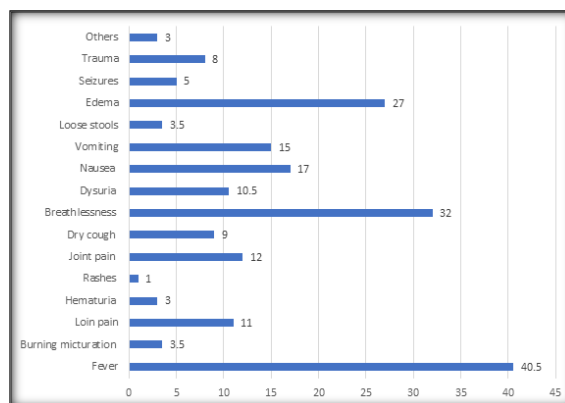


Figure 1: Proportion of patients with clinical symptoms

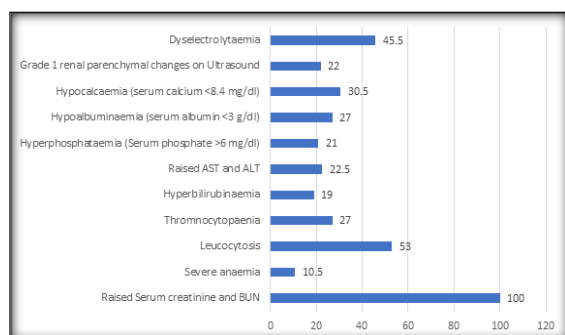


Figure 2: Proportion of patients with abnormal biochemical tests

Medical cause of AKI was identified in 82% of patients, surgical in 13% (includes Pre renal/ blood loss related, post operative, obstructive uropathy) and obstetric causes (includes Antepartum and post-partum haemorrhage, eclampsia/ HELLP syndrome, puerperal sepsis) in 5% of patients. Commonest aetiology was sepsis in 20% followed by chronic liver disease in 12%. Other medical causes identified were acute Gastroenteritis, cardiogenic/ congestive cardiac failure, drug induced, malignancy, poisoning, snake bite, haemolytic disorders, tropical fever and cerebro vascular accidents. Aetiology was unknown in 2%. [Table 2]

Table 1: Distribution of patients as per variables assessed

Parameters	Sub- group	Frequency	Percentage
Age in years	< 20 years	6	3
	21– 30 years	12	6
	31 - 40 years	24	12
	41-50 years	32	16
	51-60 years	42	21
	61-70 years	49	24.5
	>70 years	35	17.5
Age (years) Mean±SD/ range		52.5 ± 5.3 years/ 18-75 years	
Sex	Female	79	39.5
	Male	121	60.5
Residence	Rural	111	55.5
	Urban	89	44.5
Socio-economic status	Upper class I	50	25
	Upper middle class II	67	34.5
	Lower middle class III	66	33
	Upper lower class IV	15	7.5
	Lower class V	2	1
Religion	Hindu	124	62
	Muslim	56	28
	Christian and others	20	10

Comorbidities	Hypertension	32	16
	Diabetes Mellitus	27	13.5
	Chronic liver disease	19	9.5
	Coronary artery disease	22	11
	Others	16	8
Addictions	Tobacco consumption	54	27
	Alcohol abuse	76	38

Table 2: Distribution of patients by Aetiology of AKI

Aetiology of AKI		Frequency/ % (N=200)
Medical causes (164/82%)	Sepsis	40/20
	Chronic liver disease	24/12
	Acute Gastroenteritis	13/6.5
	Cardiogenic/ Congestive cardiac failure	11/5.5
	Drug induced	12/6
	Malignancy	9/4.5
	Poisoning	15/7.5
	Snake bite	3/1.5
	Haemolytic disorders	4/2
	Tropical fever	19/9.5
	Cerebro vascular accidents	10/5
	Unknown aetiology	4/2
Surgical causes (26/13%)	Pre renal/ blood loss related	11/5.5
	Post operative	8/4
	Obstructive uropathy	7/3.5
Obstetric causes (10/5%)	Antepartum and post-partum haemorrhage	4/2
	Eclampsia/ HELLP syndrome	4/2
	Puerperal sepsis	2/1

Severity of AKI as per KDIGO criteria in stage 1, 2, and 3 were 17.5%, 31.5% and 51% respectively. Community acquired AKI and Hospital acquired AKI was seen in 91% and 9% patients. Patient

outcome was assessed as complete recovery, dialysis dependency, partial recovery in 61%, 18%, 9% and death in 12% patients respectively. [Table 3]

Table 3: Distribution of patients by Severity, type and outcome of AKI

Variable	Sub category	Frequency (N=200)	Percentage
AKI stage	KDIGO Stage 1	35	17.5
	KDIGO Stage 2	63	31.5
	KDIGO Stage 3	102	51
Type of AKI	Community acquired AKI	182	91
	Hospital acquired AKI	18	9
Patient outcome	Complete Recovery	122	61
	Dialysis Dependency	36	18
	Partial recovery	18	9
	Death	24	12

Mean age of dead patients (54.1) was significantly more than alive (47.9%) patients. Males and females' association with mortality was similar, which was not significant statistically. Mortality is associated with hypertension, diabetes mellitus, CAD, CLD, lower SES and higher stages of AKI as per KDIGO criteria. Severe anaemia (Hb <7gm/dl), leucocytosis (TLC >11000/cmm), thrombocytopaenia

(<1,50,000/cmm), hyperbilirubinemia > 2mg/dl, hypoalbuminemia (serum albumin <3 g/dl), Hypocalcaemia (serum calcium <8.4 mg/dl) and dialysis dependent were more associated with mortality. Alcohol abuse, tobacco consumption, serum creatinine >4mg/dl and hyperphosphataemia (Serum phosphate >6 mg/dl) was not associated with mortality. [Table 4]

Table 4: Factors associated with mortality in patients with acute kidney injury.

Factor assessed	Sub category	Total (N=200)	Alive (176)	Dead (24)	P value
Mean Age in years		52.5 ± 5.3	47.9±12.1	54.1±3.4	P =0.01 t value = 2.4
Gender	Male	121	107 (88.4%)	14 (11.6%)	P=0.058 X2=0.81
	Female	79	69(87.3%)	10 (12.7%)	
Hypertension	Yes	32	23 (71.9%)	9 (28.1%)	P=0.002 X2=9.38
	No	168	153 (91.1%)	15 (8.9%)	
Diabetes Mellitus	Yes	27	20 (74%)	7 (26%)	P=0.016 X2=5.73
	No	163	156 (95.7%)	17 (4.3%)	
CAD	Yes	22	12 (54.5%)	10 (45.6%)	P=<0.001 X2=26.2
	No	178	164 (92.2%)	14 (7.8%)	
CLD	Yes	19	11 (57.9%)	8 (42.1%)	P=0.00002 X2=18.01
	No	181	165 (91.1%)	16 (8.9%)	

Alcohol abuse	Yes	76	64 (84.2%)	12 (17.8%)	P=0.19
	No	124	112 (90.3%)	12 (9.7%)	X2=1.67
Tobacco consumption	Yes	54	47 (87%)	7 (13%)	P=0.06
	No	146	129 (88.3%)	17 (11.7%)	X2=0.79
Socio economic status	I, II and III	183	164 (89.6%)	19 (10.4%)	P=0.02
	IV and V	17	12 (70.5%)	5 (29.5%)	X2=5.334
KDIGO	Stage 1	35	34 (97.1%)	1 (2.9%)	P=0.04
	Stage 2	63	59 (93.6%)	4 (6.4%)	X2=6.29
	Stage 3	102	83 (81.4%)	19 (18.6%)	
Severe anaemia (Hb <7gm/dl)		21	13 (61.9%)	8 (38.1%)	P=0.0001
		179	163 (91.1%)	16 (8.9%)	X2=15.9
Leucocytosis (TLC >11000/cmm)		106	85 (80.1%)	21 (19.9%)	P=0.00003
		94	91 (96.8%)	3 (3.2%)	X2=13.03
Thrombocytopaenia (<1,50,000/cmm)		54	31 (57.4%)	23 (42.6%)	P=<0.00001
		146	145 (99.3%)	1 (0.7%)	X2=65.5
Total bilirubin > 2mg/dl		38	20 (52.6%)	18 (47.4%)	P=<0.00001
		162	156 (96.3%)	6 (3.7%)	X2=55.5
serum creatinine >4mg/dl		72	60 (83.3%)	12 (16.7%)	P=0.12
		128	116 (90.6%)	12 (9.4%)	X2=2.3
Hyperphosphataemia (Serum phosphate >6 mg/dl)		42	34 (80.9%)	8 (29.1%)	P=0.1138
		158	142 (89.9%)	16 (10.1%)	X2=2.5
Hypoalbuminaemia (serum albumin <3 g/dl)		54	40 (74.1%)	14 (25.9%)	P=0.0002
		146	136 (93.1%)	10 (6.9%)	X2=13.58
Hypocalcaemia (serum calcium <8.4 mg/dl)		61	45 (73.8%)	16 (24.2%)	P=0.00004
		139	131 (94.2%)	8 (5.8%)	X2=16.8
Dialysis dependent		36	20 (27.8%)	16 (72.2%)	P=<0.00001
		164	156 (95.1%)	8 (4.9%)	X2=43.76

DISCUSSION

AKI is common in hospitalized adults in India and leads to significant in-hospital mortality. AKI is largely a CA-AKI and the lesser percentage is due to HA-AKI. Early fluid resuscitation, effective anti-infective treatment, appropriate antidotes, and timely referral of established AKI patients to centres with dialysis facilities can improve AKI outcomes. Many causes are potentially preventable.^[14] Lack of resources for early detection and treatment, patient's late arrival to health facilities with advanced-stage disease, and delay in diagnosis can contribute to the increase in the burden of AKI.^[12] To curtail this understanding on AKI demography, clinical profile and outcome which is highly variable across different horizons is necessary.

In the current study, majority of patients with AKI belonged to the age group of 61-70 years (24.5%), followed by 51- 60 years (21%), > 70 years (17.5%) and 41-50 years (16%). Mean age was 52.5 and range 18 – 75 years. Males were 60.5% with no significant difference in mortality associated with gender. In study by Prasad N et al mean $\pm$ SD of age was 44.7 $\pm$ 16.5 years with 66.6% males. Mean age was significantly higher in patients with outcome as mortality.^[6] In study by Patel U R et al amongst 70 patients enrolled, 45.7% of patients were in the age group of 40-60 years and 49 were males with no significant (p=0.412) gender difference in the included population.^[7]

In this study residence was rural in 55.5%. In study by Prasad N et al of the 3711 patients with AKI, 58.1% lived in rural areas.^[6] AKI in rural areas is often characterized by the predominance of a preventable single medical condition or infection in an otherwise healthy individual.^[13]

In this study comorbidities identified were hypertension (16%), diabetes mellitus (13.5%), chronic liver disease (9.5%), coronary artery disease (11%) and others (includes thyroid disorder/0.5%, asthma 1%). In study by Prasad N et al the most common comorbidities included hypertension (21.1%) and diabetes (19.1%).^[6] In the study by Priyamvada et al, comorbidities were present in 98 (41.52%) patients. Diabetes was the most common comorbidity (n = 49; 20.76%) followed by hypertension (n = 39; 16.52%).^[11]

In this study tobacco consumption and alcohol abuse was seen in 27% and 38% of patients with AKI. In study by Prasad N et al approximately one-third (36.7% [831/2262]) of patients with AKI consumed alcohol regularly which was similar to our study.^[6]

In this study commonest symptom was fever in 40.5% followed by breathlessness in 32% and oedema in 27%, nausea and vomiting in 17% and 15%. Other symptoms reported were burning micturition, haematuria, loin pain, rashes, joint pain, dry cough, dysuria, loose stools, seizures and trauma. Whereas, in study by Pillai VSN, presenting symptom included diminished micturition (in 47.1% of patients) followed by fever in 42.9%. In 71.4% of patients, no renal parenchymal changes were observed on ultrasound, while remaining (28.6%) patients showed grade 1 renal parenchymal changes.^[14]

In this study lab investigations showed, raised Serum creatinine and BUN in 100% patients, severe anaemia in 10.5%, leucocytosis in 53%, thrombocytopaenia in 27%, hyperbilirubinemia in 19%, raised AST and ALT in 22.5%, hyperphosphatemia (Serum phosphate >6 mg/dl) in 21%, hypoalbuminemia (serum albumin <3 g/dl) in 27%, hypocalcaemia (serum calcium <8.4 mg/dl) in 30.5%, grade 1 renal parenchymal changes on

Ultrasound in 22%, dyselectrolytaemia in 45.5%. Similarly in study by Prasad N et al, hyperkalemia (11.6%), transaminitis (24.4%), hypocalcemia (27.9%), hyperphosphatemia (19.4%), and hypoalbuminemia (27.4%) were observed on admission.^[6]

In this study severity of AKI as per KDIGO criteria in stage 1, 2, and 3 were 17.5%, 31.5% and 51% respectively. In study by Prasad N et al among the 3711 patients, 2034 (54.8%) had stage 3 AKI, 1143 (30.8%) had stage 2, and 534 (14.4%) had stage 1.^[6] In this study community acquired AKI and Hospital acquired AKI was seen in 91% and 9% patients. In study by Vikranth et al about 92.2% had community-acquired AKI (CA-AKI), and in 7.8% it was hospital-acquired AKI (HA-AKI).^[5]

In this study, patient outcome was assessed as complete recovery, dialysis dependency, partial recovery in 61%, 18%, 9% and death in 12% patients respectively. In study by Vikranth S et al, nearly 38.2% had multiorgan failure, 20.1% required vasopressors, 6.1 % required Intensive Care Unit support, and 23.3% required dialysis.^[5] Mortality was 8.7%. In study by Prasad N et al, at 3 months of follow-up, mortality rate, CR, PR, and dialysis dependency rates were 11.4%, 72.2%, 7.2%, and 1%, respectively.^[6] The overall survival rate in the study by VSN pillai was 52.9%.^[14] These variations could be due to difference in the cohort studied.

In this study medical cause of AKI identified in 82% of patients, surgical in 13% (includes Pre renal/ blood loss related, post operative, obstructive uropathy) and obstetric causes (includes Antepartum and post-partum haemorrhage, eclampsia/ HELLP syndrome, puerperal sepsis) in 5% of patients. In study by Prasad N et al, AKI occurred in medical, surgical, and obstetrical settings in 86.7%, 7.3%, and 6%, respectively.^[6] In study by Vikranth S et al, etiological factors for AKI were medical in 87.4% of the cases, surgical in 9.4%, and obstetric 3.2%.^[5]

In this study commonest aetiology was sepsis in 20%. Similarly in study by Vikranth S et al, sepsis was the most common (53.1%) aetiology of AKI among the medical cases. Among sepsis, scrub typhus, urosepsis, and pneumonia were the most common causes of AKI. Hypovolemia (9.4%), biological toxins (8.4%), nephrotoxic drugs and chemicals (7.4%), cardiac causes (7.4%), and acute glomerulonephritis (1.9%) were other medical causes of AKI.^[5] In study by Prasad N et al, most common causes of AKI were associated with sepsis (34.7%) and tropical fever (9.8%).^[6] In study by Priyamvada et al, sepsis was the most important cause of AKI, accounting for 22% of admissions.^[11] In study by Pillai VSN et al the most common etiology for acute renal failure (ARF) in the included population was sepsis found in 27.1% of patients, followed by malaria (8.5%), cirrhosis (7.1%), cardiogenic shock (7.1%), leptospirosis (7.1%), and snake bite (7.1%).^[14] This shows the role of administration of antibiotics in preventing AKI.

In this study, mean age of dead patients (54.1) was significantly more than alive (47.9%) patients, mortality is associated with hypertension, diabetes mellitus, CAD, CLD, lower SES and higher stages of AKI as per KDIGO criteria. Severe anaemia (Hb <7gm/dl), leucocytosis (TLC >11000/cmm), thrombocytopenia (<1,50,000/cmm), hyperbilirubinemia > 2mg/dl, hypoalbuminemia (serum albumin <3 g/dl), Hypocalcaemia (serum calcium <8.4 mg/dl) and dialysis dependent were more associated with mortality. In study by Prasad N et al, age >65 years, alcoholism, anuria, hypotension at presentation, thrombocytopenia, vasopressor use, transaminitis, and low SES were associated with mortality at the index admission. Study by Vikranth S stated that, anemia, use of vasopressor drugs, and need for intensive care support were independent predictive factors for mortality. AKI is common in hospitalized adults in India and leads to significant in-hospital mortality.

CONCLUSION

AKI is more common in elderly. Sepsis is the commonest cause of AKI, thus antibiotic administration can prevent AKI. AKI is largely a CA-AKI and the lesser percentage is due to HA-AKI. Mortality is associated with hypertension, diabetes mellitus, CAD, CLD, lower SES and higher stages of AKI as per KDIGO criteria. Severe anaemia (Hb <7gm/dl), leucocytosis (TLC >11000/cmm), thrombocytopenia (<1,50,000/cmm), hyperbilirubinemia > 2mg/dl, hypoalbuminemia (serum albumin <3 g/dl), Hypocalcaemia (serum calcium <8.4 mg/dl) and dialysis dependent were more associated with mortality.

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