

CLINICAL PROFILE & OUTCOMES OF AKI AT A TERTIARY CARE CENTRE IN HYDERABAD, TELANGANA, INDIA

Dr Mahesh Kota¹, Dr Rajasekara Chakravarthi M², Dr Vijay Varma P³

1 Department of Nephrology, Yashoda hospital, Hyderabad
2 Department of Nephrology, Yashoda hospital, Hyderabad
3 Department of Nephrology, Yashoda hospital, Hyderabad



AIMS & OBJECTIVES

To study demographics, comorbid, risk factors of AKI (Acute Kidney Injury), RRT (Renal Replacement therapy) offered, duration of ICU (Intensive Care Unit) stay and hospital stay and type of extracorporeal therapies offered for the AKI patients admitted at Yashoda hospitals, Hitech, India.

MATERIALS AND METHODS

In this prospective observational study, first three hundred patients with AKI admitted in ICU were studied with a detailed clinical history, physical and laboratory evaluation.

INCLUSION CRITERIA:

All the patients with age ≥ 18 years admitted to ICU and having AKI of KDIGO stage ≥ 1 were included in the study group. Patients with age < 18 years or patients not giving consent.

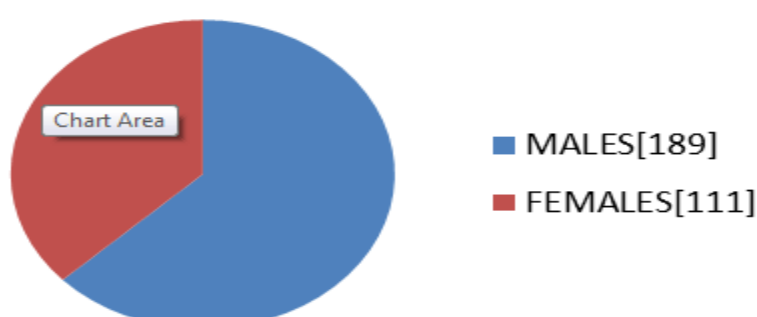
EXCLUSION CRITERIA:

Patients with age < 18 years
Patients not giving consent
Patients with ESRD.

RESULTS:

DEMOGRAPHY

GENDER DISTRIBUTION



Among 300 patients in the study group, 189 were males and 111 were females. The mean age of patients with AKI in the study group was 62.37 years, average length of ICU stay was 3.62 days and average length of hospital stay was 8.73 days.

COMORBIDS

Comorbids	Number of patients; n(%)
Transplant recipients	32 [14.2%]
Hypertension	225 [75%]
Diabetes mellitus	159 [53%]
Hypothyroid	28 [9.3%]

Among 300 patients in the study group 32 members were renal transplant recipients, 225 had hypertension, 159 had diabetes mellitus and 28 of them had hypothyroidism.

STAGES OF AKI



Out of 300 patients in the study group, AKI of AKIN I was seen in 75 members, AKIN II was seen in 88 members and AKIN III was seen in 137 members.

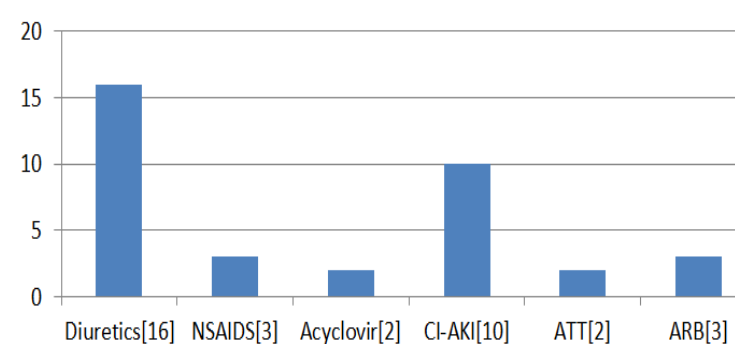
MULTIFACTORIAL CAUSES OF AKI

Cause of AKI	Number of patients; n(%)
Urosepsis+ diuretic use	3 [5.8%]
Sepsis+TMA	6 [11.7%]
CRS+CI-AKI	27 [52.9%]
Sepsis+Pre renal AKI	3 [5.8%]
CMV infection +Urosepsis	2 [3.9%]
CRS+Sepsis	4 [7.8%]
CSA-AKI+NSAIDS	3 [5.8%]
LRTI+NSAIDS	3 [5.8%]

SINGLE CAUSATIVE FACTOR OF AKI (N=249)

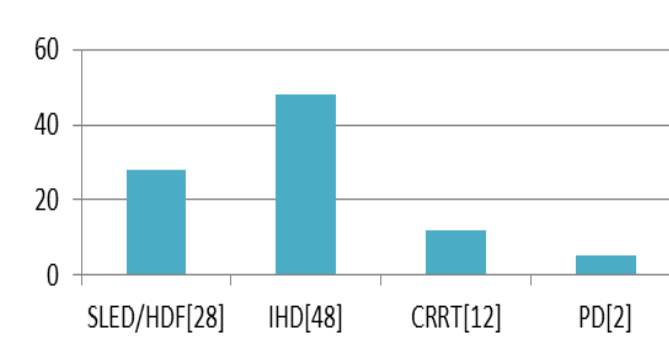
Cause of AKI	Number of patients; n(%)	Cause of AKI	Number of patients; n(%)
HRS	7 [2.8%]	Glomerulonephritis	6 [2.4%]
Anasarca	5 [2%]	Biliary sepsis	3 [1.2%]
Urosepsis	45 [18.1%]	Peri-operative AKI	3 [1.2%]
Neutropaenic sepsis	3 [1.2%]	PRAKI	4 [1.6%]
Pre renal AKI	33 [13.2%]	Surgical sepsis	2 [0.8%]
Malignant HTN	15 [6.1%]	LRTI	33 [13.2%]
Skin & Soft tissue infection	9 [3.6%]	Infective endocarditis	3 [1.2%]
CSA-AKI	6 [2.4%]	CRS	18 [7.2%]
Allograft rejection	3 [1.2%]	Acute pancreatitis	3 [1.2%]
Drug induced AKI	36 [14.4%]	Obstructive uropathy	6 [2.4%]
Seizure/lactic acidosis	3 [1.2%]	OSA	3 [1.2%]

DRUG INDUCED AKI



Out of 36 patients with drug induced AKI, diuretics was the cause of AKI in 16 members, NSAIDS in 3 members, acyclovir in 2 members, contrast in 10 members, ATT in 2 members and ARB use was the cause of AKI in 3 members.

OVERVIEW OF RENAL REPLACEMENT THERAPY



Out of 90 patients with AKI where renal replacement therapy was offered as treatment modality, SLED/HDF was done in 28 members, IHD was done in 48 members, CRRT was done in 12 members and peritoneal dialysis (PD) was done in 2 members.

OUTCOMES OF AKI IN THE STUDY GROUP

Out of all the patients with AKI in the present study, total number of patients recovered from AKI without any RRT was 207, total number of patients who received RRT and recovered from AKI/off RRT support at discharge was 27, total number of patients who received RRT and in RRT dependent state at discharge was 53, total number of patients who received RRT and expired was 10 and total number of patients who had severe AKI, did not receive any RRT and expired was 3 in number.

OVER VIEW OF MANAGEMENT IN PATIENTS WITH HRS

Out of the 7 patients with HRS in the study group, Plasmapheresis -bilirubin adsorption -Plasma filter with BS330 bilirubin adsorber was done in two patients. Plasma filter with BS330 & HA330 hemoperfusion was done in one patient. High volume plasmapheresis predominantly for bilirubin removal/encephalopathy was done in 2 members. Conservative management with vasopressors and albumin was done in two members.

OVER VIEW OF EXTRA-CORPOREAL THERAPIES

Hemoperfusion-hemoadsorption (Cytosorb in series with CRRT) was done in one patient. Hemofiltration-hemoadsorption with Oxiris was done in three patients and PMMA filter was used in five patients. Plasmapheresis-bilirubin adsorption - plasma filter with BS330 bilirubin adsorber was done in two patients, plasma filter with BS330 & HA330 hemoperfusion was done in one patient. Medium cutoff membrane (Theranova filter) was done in three patients (one with refractory myeloma and two other patients with rhabdomyolysis).

OVER VIEW RENAL BIOPSIES IN AMCU

Among all the patients with AKI in the study group, four members underwent renal biopsy in the AMCU. Among them one with refractory myeloma with pancytopenia had acute on chronic interstitial nephritis, one with persistent AKI after acute and severe diarrhea had severe ATN, one with persistent AKI after vascular procedure and cellulitis had severe ATN with mild chronicity and one with persistent AKI after pancreatico-biliary sepsis had severe ATN with moderate chronicity.

CONCLUSIONS

Sepsis was the common cause of AKI and RRT was offered in 30% patients in the study group. Need for RRT, higher grade of AKI, poor hemodynamics and delayed initiation of RRT in needy patients was associated with very poor outcomes. DIRI which was seen in 36 members in the study group are the cohort of patients where it can be avoided with proper awareness among treating doctors. Regional citrate anticoagulation has great advantage over other anticoagulation modalities in CRRT not only by increasing the circuit life but also by decreasing the risk of bleeding caused by use of systemic anticoagulation. Early and proper application of extracorporeal therapy is always beneficial in critically ill patients with multi organ dysfunction. Proper selection of renal replacement therapy modalities are extremely essential in preserving renal functional reserve and to enhance renal recovery. As patients with severe cardiac failure with renal injury will not do well on hemodialysis, we suggest to use peritoneal dialysis for ultrafiltration/solute removal/myocardial depressant factor removal, of course if peritoneal dialysis is feasible for that particular patient. Daily cumulative balance is a simple bedside biomarker of renal injury/renal recovery/morbidity and mortality, as most of the patients with increased cumulative fluid balance had increased morbidity, increased need for RRT, we suggest always try to achieve negative fluid balance for overall better outcomes.



THE 29TH INTERNATIONAL CONFERENCE ON
ADVANCES IN CRITICAL CARE NEPHROLOGY
AKI & CRRT 2024

MARCH 12-15, 2024 SAN DIEGO, CALIFORNIA