

Clinical profile of acute kidney injury in ICU patients

Ramrao Mundhe¹, Maroti Karale^{2*}, Arjun Mali³

^{1,2}Assistant Professor, ³Junior Resident, Department of Medicine, Government Medical College, Latur, Maharashtra, INDIA.

Email: drmskarale13@gmail.com

Abstract

Background: Acute kidney injury (AKI) is a global problem. Its incidence varies in different geographical regions as well as the targeted population under the study. **Aims and Objectives:** To study Clinical profile of Acute Kidney injury in ICU patients. **Methodology:** This was a cross-sectional study carried out in the ICU department at Government medical college, Latur in the patients admitted with Acute Kidney injury during the 18 month period i.e. July 16 to December 17, so during the 18 month period there 43 patients admitted to ICU, all details of the patients like age, sex, clinical features, etiological factors were investigated noted in excel sheets and analyzed by Excel software for windows 10. **Result:** The majority of the patients were in the age group of >60 were 30.23%, 50-60- 25.58%, 40-50 - 20.93%, 30-40-16.28%, 20-30- 6.98%. The majority of the patients were Male i.e. 62.79%, female were 37.21%. The most common clinical features were Vomiting - 94.00%, Oliguria-85.00%, Fatigue- 76.00%. Shortness of breath were 75.00%, Fever-65.00%, Diarrhea- 35.00%, Hypotension- 21.00%, Edema-16.00%, Jaundice- 12.00%. As per etiology the causes were ; Pre Renal - Acute GE-9%, Malaria-5%, Septicemia-9%, Renal - Acute GE-7%, CCF-5%, Drug Induced- 16%, Malaria-12%, GN-5%, Rhabdomyolysis- 9%, Septicemia- 9%, Snake Bite- 7%; Post Renal -Bladder outlet obstruction- 7% **Conclusions:** It can be concluded from our study that the majority of the patients were in the age >60 , The most common clinical features were Vomiting, Oliguria, Fatigue, Shortness of breath, Fever, Diarrhea, Hypotension, Edema, Jaundice. As per etiology the causes were Pre Renal -Acute G, Malaria. Post Renal - Bladder outlet obstruction etc. **Key Word:** Acute kidney injury (AKI) , Etiology of AKI.

*Address for Correspondence:

Dr. Karale M. S. Second floor, Department of Medicine, Government Medical College, Latur, Maharashtra, INDIA.

Email: drmskarale13@gmail.com

Received Date: 21/01/2019 Revised Date: 18/02/2019

Accepted Date: 12/03/2019

DOI: <https://doi.org/10.26611/1021937>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:
21 March 2019

critically ill patients and in patients undergoing cardiac surgeries.² Unlike the high-income countries, the data from low- and medium-income countries are very few. In the developing countries like India, most of the data are from urban setting, and the AKI occurring in the communities is largely unreported. The annual incidence of AKI in hospitalized patients was found to be 6.6/1000 admissions.³ The epidemiology of AKI in developing countries is unique in that certain causes, such as the infections, obstetric causes, and nephrotoxins, which are largely obsolete in developed countries remain important causes in developing countries.⁴ Recent epidemiological studies demonstrate the wide variation in the etiologies and risk factors associated with AKI⁵ and describe the increased mortality associated with the disease and suggest the relationship to the development of chronic kidney disease (CKD) and progression to dialysis dependency.^{6,7} So we have studied clinical profile of Acute Kidney injury in ICU patients

INTRODUCTION

Acute kidney injury (AKI) is a global problem. Its incidence varies in different geographical regions as well as the targeted population under the study. According to one meta-analysis, the pooled incidence rates of AKI in adult were 21.6–20% of hospitalized adult patients experienced AKI during a hospital care which is associated with high expenditure of resources and lead to adverse outcomes¹ AKI leads to high mortality in

METHODOLOGY

This was a cross-sectional study carried out in the ICU department at Government medical college, Latur in the patients admitted with Acute Kidney injury during the 18 month period i.e. July 16 to December 17, so during the 18 month period there 43 patients admitted to ICU, all details of the patients like age, sex, clinical features, etiological factors were investigated noted in excel sheets and analyzed by Excel software for windows 10.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
20-30	3	6.98
30-40	7	16.28
40-50	9	20.93
50-60	11	25.58
>60	13	30.23
Total	43	100.00

The majority of the patients were in the age group of >60 were 30.23%, 50-60- 25.58%, 40-50 - 20.93%, 30-40- 16.28%, 20-30- 6.98%.

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	27	62.79
Female	16	37.21
Total	43	100.00

The majority of the patients were Male i.e. 62.79%, female were 37.21%.

Table 3: Distribution of the patients as per the clinical features

clinical features	No.	Percentage (%)
Vomiting	40	94.00%
Oliguria	37	85.00%
Fatigue	33	76.00%
Shortness of breath	30	75.00%
Fever	28	65.00%
Diarrhea	15	35.00%
Hypotension	9	21.00%
Edema	7	16.00%
Jaundice	5	12.00%

The most common clinical features were Vomiting - 94.00%, Oliguria-85.00%, Fatigue- 76.00% Shortness of breath were 75.00%, Fever- 65.00%, Diarrhea- 35.00%, Hypotension- 21.00%, Edema 16.00%, Jaundice- 12.00%.

Table 4: Distribution of the patients as per the etiological factors

Pre Renal	No.	Percentage (%)
Acute GE	4	9%
Malaria	2	5%
Septicemia	4	9%
Renal		
Acute GE	3	7%
CCF	2	5%
Drug Induced	7	16%

Malaria	5	12%
GN	2	5%
Rhabdomyolysis	4	9%
Septicemia	4	9%
Snake Bite	3	7%
Post Renal		
Bladder outlet obstruction	3	7%
Total	43	100%

As per etiology the causes were ; **Pre Renal** - Acute GE-9%, Malaria-5%, Septicemia-9%, **Renal** - Acute GE-7%, CCF-5%, Drug Induced- 16%, Malaria-12%, GN-5%, Rhabdomyolysis- 9%, Septicemia- 9%, Snake Bite- 7%; **Post Renal** -Bladder outlet obstruction- 7%

DISCUSSION

Acute kidney injury (AKI) is a common medical problem among hospitalized patients and may be associated with multiple etiologies, occurring singly or in combination, including infectious diseases or conditions such as diarrheal disease, HIV, malaria, glomerulonephritis and sepsis, toxins or herbal medications, autoimmune diseases, pregnancy-related conditions, trauma-related tubular injury, and iatrogenic causes including medications such as nonsteroidal anti-inflammatory drugs, hypovolemia, and contrast induced nephropathy^{8,9}. While there is limited data, the incidence of AKI among hospitalized patients in Africa is estimated at 0.3–1.9%¹⁰. Country specific studies such as those in Malawi found an incidence of AKI of 17.2%¹¹. Mortality rates among hospitalized patients with AKI may be as high as 44.4%¹¹. Multiple studies have shown that AKI occurs frequently among hospitalized patients and contributes significantly to increased morbidity and mortality, prolonged hospital stay, and healthcare costs including increased needs for critical care^{12,14}. Understanding the proximate causes of AKI and potentially modifiable etiologies continues to be the focus of research¹⁵. In our study we have seen that The majority of the patients were in the age group of >60 were 30.23%, 50-60- 25.58%, 40-50 - 20.93%, 30-40-16.28%, 20-30- 6.98%. The majority of the patients were Male i.e. 62.79%, female were 37.21%. The most common clinical features were Vomiting - 94.00%, Oliguria-85.00%, Fatigue-76.00%. Shortness of breath were 75.00%, Fever- 65.00%, Diarrhea- 35.00%, Hypotension- 21.00%, Edema- 16.00%, Jaundice- 12.00%. per etiology the causes were ; **Pre Renal** - Acute GE-9%, Malaria-5%, Septicemia-9%, **Renal** - Acute GE-7%, CCF-5%, Drug Induced- 16%, Malaria-12%, GN-5%, Rhabdomyolysis- 9%, Septicemia-9%, Snake Bite- 7%; **Post Renal** -Bladder outlet obstruction- 7% These findings are similar Md. Yousuf Khan ¹⁶ they found Maximum incidence (22%) of AKI was seen in the age group between 25- 30 years. The most common clinical features were vomiting (92%),

oliguria (80%), fatigue (72%), fever (70%). The incidence of prerenal, renal and postrenal AKI was 20% 76%, 4% respectively, Malaria (24%) was the predominant cause of AKI in our study. In our study mortality was seen in 10% of the patients, of which most of the patients had septicemia and associated complications like respiratory failure.

CONCLUSIONS

It can be concluded from our study that the majority of the patients were in the age >60, The most common clinical features were Vomiting, Oliguria, Fatigue, Shortness of breath, Fever, Diarrhea, Hypotension, Edema, Jaundice As per etiology the causes were Pre Renal -Acute G, Malaria. Post Renal -Bladder outlet obstruction etc.

REFERENCES

- Lewington AJ, Cerdá J, Mehta RL. Raising awareness of acute kidney injury: A global perspective of a silent killer. *Kidney Int* 2013; 84: 457-67.
- Chertow GM, Levy EM, Hammermeister KE, Grover F, Daley J. Independent association between acute renal failure and mortality following cardiac surgery. *Am J Med* 1998; 104: 343-8.
- Susantitaphong P, Cruz DN, Cerda J, Abulfaraj M, Alqahtani F, Koulouridis I, *et al.* World incidence of AKI: A meta-analysis. *Clin J Am Soc Nephrol* 2013; 8: 1482-93.
- Kohli HS, Bhat A, Jairam A, Aravindan AN, Sud K, Jha V, *et al.* Predictors of mortality in acute renal failure in a developing country: A prospective study. *Ren Fail* 2007; 29: 463-9.
- Mehta RL, Pascual MT, Soroko S, Savage BR, Himmelfarb J, Ikizler TA, *et al.* Spectrum of acute renal failure in the intensive care unit: The PICARD experience. *Kidney Int* 2004; 66: 1613-21.
- Waikar SS, Curhan GC, Wald R, McCarthy EP, Chertow GM. Declining mortality in patients with acute renal failure, 1988 to 2002. *J Am Soc Nephrol* 2006; 17: 1143-50.
- Liagos O, Wald R, O'Bell JW, Price L, Pereira BJ, Jaber BL, *et al.* Epidemiology and outcomes of acute renal failure in hospitalized patients: A national survey. *Clin J Am Soc Nephrol* 2006; 1: 43-51
- L. B. Mahmoud, A. Pariente, K. Kammoun *et al.*, "Risk factors for acute decompensation of chronic kidney disease in hospitalized patients in the nephrology department: A case-control study," *Clinical Nephrology*, vol. 81, no. 2, pp. 86–92, 2014.
- S. Naicker, O. Aboud, and M. B. Gharbi, "Epidemiology of Acute Kidney Injury in Africa," *Seminars in Nephrology*, vol. 28, no. 4, pp. 348–353, 2008.
- D. Adu, P. Okyere, V. Boima, M. Matekole, and C. Osafo, "Community-acquired acute kidney injury in adults in Africa," *Clinical Nephrology*, vol. 86, pp. 48–52, 2016.
- R. D. R. Evans, U. Hemmila, A. Craik *et al.*, "Incidence, aetiology " and outcome of community-acquired acute kidney injury in medical admissions in Malawi," *BMC Nephrology*, vol. 18, no. 1, article no. 21, 2017
- S. Sawhney and S. D. Fraser, "Epidemiology of AKI: Utilizing Large Databases to Determine the Burden of AKI," *Advances in Chronic Kidney Disease*, vol. 24, no. 4, pp. 194–204, 2017.
- O. Okunola, A. Akinsola, and O. Ayodele, "Kidney diseases in Africa: aetiological considerations, peculiarities and burden.," *African Journal of Medicine and Medical Sciences*, vol. 41, no. 2, pp. 119–133, 2012.
- A. Saeed, V. H. M. Amin, M. Alireza, H. Hadi, and A. O. Rahimeh, "Evaluation of the effect of statins on post-surgical patients with acute kidney injury," *Maedica*, vol. 12, no. 2, pp. 95–100, 2017.
- S. Nie, L. Tang, W. Zhang, Z. Feng, and X. Chen, "Are There Modifiable Risk Factors to Improve AKI?" *BioMed Research International*, vol. 2017, Article ID 5605634, 2017
- Md. Yousuf Khan, P. Deepak, A. Praveen Kumar, Krishna Kumar T V. Study of etiology, clinical profile and outcome of acute kidney injury (AKI) in Medical Intensive Care Unit. *International Journal of Contemporary Medical Research* 2017;4(11):2225-2228.

Source of Support: None Declared
Conflict of Interest: None Declared