Research Article

A study on outcome of acute kidney injury in ICU patients at tertiary care hospital: A cross sectional study

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Abstract

Introduction: Acute Kidney Injury (AKI) affects 5–7% of all hospitalized patients, with a much higher incidence in the critically ill. This study is an attempt to evaluate the outcome of acute renal failure in patients admitted to ICU ICU Dr Ulhas Patil Medical College and Hospital Jalgaon. **Objective:** To study outcome of acute kidney injury in patients admitted to ICU. **Material and Methods:** This was a retrospective study done in general hospital over a period of one year. It included cases admitted to ICU with clinical and laboratory evidence of acute renal failure. **Results:** Among 112 patients 69 were male and 43 female. Average age was 38.82 years. Gastroenteritis and septicemia were common causes. Among the patients mortality rate was 7.14%. **Conclusion:** Hence, we conclude that younger age group with male dominance showed more AKI. Gastroenteritis and septicemia were found to be the predominant causes of AKI. The mortality is also higher as compared to other diseases.
Keywords: Acute Kidney Injury; Pre Renal; Renal; Post Renal.

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INTRODUCTION

Acute kidney injury (AKI) refers to a syndrome encompassing kidney damage from mild injury to total loss of function that seriously disturbs the homeostasis of fluid and electrolyte balances.[1] A uniform definition for acute kidney injury has existed only since 2004, when the Acute Dialysis Quality Initiative (ADQI) proposed the Risk, Injury, Failure, Loss, End-stage kidney disease (RIFLE) criteria for AKI.[2] Since then two modifications of the RIFLE: Acute Kidney Injury Network (AKIN) (2007),[3] and Kidney Disease: Improving Global Outcomes (KDIGO) (2012) have emerged. All of the three modern definitions are based on changes in serum or plasma creatinine (Cr) and urine output (UO). Clinical symptoms may be scarce in the early stages of AKI. As the kidney injury progresses and affects the glomerular filtration rate (GFR) Cr starts to rise. Oliguria or anuria may develop early, but sometimes the UO remains intact for quite long. Later in the course of AKI the severely diminished GFR manifests as electrolyte and acid-base disturbances, most often as elevated potassium and acidosis. Acute Kidney Injury (AKI) affects 5–7% of all hospitalized patients, with a much higher incidence in the critically ill.[4] The present designed a study aimed to estimate outcome of patients who developed AKI.

OBJECTIVE

To study outcome of acute kidney injury in patients admitted to ICU.

MATERIALS AND METHODS

This was a cross sectional study of among patients of acute renal failure admitted to ICU of Dr Ulhas Patil Medical College and Hospital Jalgaon from January 2014 to December 2014. All patients with clinical and biochemical evidence of acute renal failure according to

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RIFLE criteria were included in the study. We included all adult patients, with ICU length of stay of more than 24 hours, who had at least 2 serum creatinine measurements and at least one 6 hours urine output observation period. Patients who underwent RRT on the day of or prior to their hospital admission, or who had a first serum creatinine level of >4 mg/dL were categorized as having end-stage renal disease (ESRD), and therefore were excluded. A total of 112 Patients admitted during the study period were included in the study. The patients with chronic renal disease and aged below 12 years were excluded. Detailed history was recorded, general physical examination, systemic examination was done and necessary investigations were done.

RESULTS

Table 1: Distribution of Patients according to age

Age group (years)	No. of Patients	Percentage
12-20	04	03.57
21-30	32	28.57
31-40	28	25.00
41-50	24	21.43
51-60	13	11.61
>60	11	09.82
Total	**112**	**100**

The maximum incidence was seen in the age group between 21 to 30 years (28.57%). Their age ranged from 16-80 years with mean age of 38.82 years.

Table 2: Distribution of Patients according to sex

Gender	No. of Patients	Percentage
Male	69	61.61
Female	43	38.39
Total	**112**	**100**

Among the patients, 69 (61.61%) patient were male and 43 (38.39%) were female. The ratio of Male: Female was 1.6:1.

Table 3: Distribution of Patients according to cause of AKI:*

Cause	No. of Patients	Percentage
Gastroenteritis	42	37.50
Septicemia	24	21.43
Malaria	10	08.92
RPGN	12	10.72
Congestive cardiac failure	08	07.14
Snake bite	06	05.36
Obstetric cause	04	03.57
Others	06	05.36
Total	**112**	**100**

(Others include nephrotoxic drugs.) The causes among patients showed that, 42(37.50%) patients had gastroenteritis, 24 (21.43%) had septicemia, 10(8.92%) patients had history of malaria.

Table 4: Distribution of Patients according to outcome of AKI:*

Cause	No. of Patients	Percentage
Survived	104	92.86
Died	08	07.14
Total	**112**	**100**

Among the patients, 12 (7.14%) died while 104(92.86%) survived in the ICU due to AKI.

DISCUSSION

The present retrospective study was done with an objective to study clinical profile of acute kidney injury in patients admitted to ICU. The study was done for a period of one year. A total of 112 patients with AKI were studied during study period. The age of the patients ranged from 16 to 80 years with mean age of 38.82 years. There were 69(61.61%) were males and 43(38.39%) were females. Similar findings were seen by Bernich B *et al.*[5], in their study of pattern of acute renal failure, found that 58% were males and 36% were females. The mean age of these patients was 56.2 years. In another study by Ravindra L Mehta *et al.*[6], 41% were females and 59% were males. The mean age of these patients was 59.5 years. In the present study, the main causes among patients showed that, 42(37.50%) patients had gastroenteritis, 24 (21.43%) had septicemia, 10(8.92%) patients had history of malaria. This was comparable to a study done by Ghayas khan *et al*[7], where acute gastroenteritis was found to be the commonest cause of AKI accounting for 58.97% of cases in their study. The present study showed that among 112 patients, 12 (7.14%) died while 104(92.86%) survived in the ICU due to AKI. The mortality rate was 7.14% which was comparable with study done by Mandelbaum T *et al* [8] that, in hospital mortality rates were: 13.9%, 16.4%, 33.8% for acute kidney injury 1, 2, and 3, respectively.

CONCLUSION

Hence, we conclude that younger age group with male dominance showed more AKI. Gastroenteritis and septicemia were found to be the predominant causes of AKI. The mortality is also higher as compared to other diseases.

REFERENCES

1. Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney inter. 2012; 2: 1-13.
2. Bellomo R, Ronco C, Kellum JA, Mehta RL, Palevsky P, Acute Dialysis Quality Initiative w. Acute renal failure - definition, outcome measures, animal models, fluid

therapy and information technology needs: the Second International Consensus Conference of the Acute Dialysis Quality Initiative (ADQI) Group. Crit Care. 2004; 8: R204-12.
3. Mehta RL, Kellum JA, Shah SV, Molitoris BA, Ronco C, Warnock DG, Levin A, Acute Kidney Injury N. Acute Kidney Injury Network: report of an initiative to improve outcomes in acute kidney injury. Crit Care. 2007; 11: R31.
4. Chertow GM, et al. Acute kidney injury, mortality, length of stay, and costs in hospitalized patients. J Am Soc Nephrol. 2005; 16(11):3365–70.
5. Benrich B. et al Pattern of acute vrenal failure/Transplantations proceeding. 2003; 36:1780-88.
6. Ravindra L Mehta, Maria T Pascual, Sharon Soroko, Brandon R Savage, Jonathan Himmelfarb, T Alp Ikizler, Emil P Paganini, Glenn M Chertow and for the program to improve care in Acute Renal Disease (Picard) Kidney International. 2004; 66, 1613-1621.
7. Ghayas Khan, Karamat Hussian, Shakeel Ahmed Mirza, Kamran Aziz, Abdul Rehman diseases cuasing acute renal failure in tertiary care centre. PAFMJ. 2010; 4:213-16.
8. Mandelbaum T, Scott DJ, Lee J, Mark RG, Malhotra A, Waikar SS, Howell MD, Talmor D. Outcome of critically ill patients with acute kidney injury using the Acute Kidney Injury Network criteria. Crit Care Med. 2011 Dec; 39(12):2659-64.

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