A Study of Clinical Profile of Acute Kidney Injury in a Tertiary Hospital, Visakhapatnam

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Abstract

Background and Objectives: Acute kidney injury is a common clinical condition encountered in our hospital. This study is an attempt to evaluate the clinical profile of acute kidney injury in 50 patients admitted to King George Hospital.

Method: This prospective study was done at King George hospital, over a period of 8 months. This study included fifty patients with clinical and laboratory evidence of acute kidney injury in patients admitted to our hospital.

Results: 32 male and 18 female patients with mean age of 48.01 years. Oliguria and vomiting were common presenting symptoms. Other common symptoms were fever, loss of appetite, jaundice and loose stools.

The etiological factors associated are malaria, septicemia and drug induced nephrotoxicity, Leptospirosis, Snakebite and Acute Gastroenteritis. Two patients had obstructive uropathy.

Conclusion: We observed oliguria and vomiting were common clinical features. Malaria was predominant etiological factor in our patients and falciparum malaria was more common than vivax malaria. However all these patients were treated conservatively. In our study, 90% of patients were survived. 74% of patients were treated conservatively and 26% of patients underwent hemodialysis.

Introduction
Acute kidney injury is a syndrome characterized by rapid (hours to weeks) decline in glomerular filtration rate (GFR) and retention of nitrogenous waste products such as blood urea nitrogen (BUN) and creatinine and perturbation of extra cellular fluid volume and electrolyte and acid base homeostasis. AKI is a common clinical condition in hospitalized patients. The incidence of AKI in hospitalized patients is between 2% and 5%. The most common causes of AKI are; volume depletion, hypotension, aminoglycoside antibiotics and radiocontrast agents. Major surgery is also an important cause of AKI. Advanced age, liver diseases, underlying renal insufficiency and diabetes have been implicated as risk factors for the development of AKI.

Aims and Objectives
AKI is a common clinical condition encountered in King George Hospital. This study is an attempt to analyse the common causes and clinical manifestations of acute kidney injury in fifty hospitalized patients at King George Hospital.
Materials and Methods
This is a prospective study of patients with acute kidney injury admitted to King George Hospital between January 2020 to August 2020.

Study Protocol: Patients of both sexes above 18 years were included in this study. All these patients were studied with a detailed history, general physical examination, systemic examination and investigated as per the proforma. All the patients were followed up till the time of discharge.

Selection Criteria
A). Inclusion Criteria
All inpatients aged >18years with clinical and / or biochemical evidence of acute renal failure.

B). Exclusion Criteria
- Patients with pre-existing chronic renal failure or chronic renal disease.
- Patients aged below 18years.

Results and Analysis
Out of 50 cases studied, 32(64%) patient were males and 18(36%) were females. Out of 50 cases, 46(92%) patients had vomiting, 40(80%) had oliguria, 36(72%) patients had history of fatigue. Fever was seen in 35 (70%) cases and 16(32%) patient had loose stools.

Out of 50 patients, 6(12%) had history of nephrotoxic drug intake. Out of 50 patients, 6 (12%) patients had history of diabetes mellitus and 6 (12%) patients had hypertension.

Types of AKI

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renal</td>
<td>38</td>
<td>76.0</td>
</tr>
<tr>
<td>Pre renal</td>
<td>10</td>
<td>20.0</td>
</tr>
<tr>
<td>Post renal</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Out of 50 cases studied, 10 patients had prerenal AKI. Out of which, 4(8%) patients had acute GE, 5(10%) patients had Malaria and one (2%) patient had AKI following septicaemia.
Patients with Pre-Renal AKI

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute GE</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>Malaria</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>Septicaemia</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

Out of 50 cases, 38 patients had renal cause. Out of which, Malaria was seen in 12 (24%) patients, 6(12%) patients had nephrotoxic AKI, 6(12%) patients had septicaemia, 2(4%) had post infectious glomerulonephritis, 2(4%) had snakebite and 1(2%) had Rhabdomyolysis. Acute gastroenteritis seen in 5 (10%) of patients, CCF 1(2%).

Patients with Renal AKI

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute GE</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>CCF</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Drug induced</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Leptospirosis</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Malaria</td>
<td>12</td>
<td>24%</td>
</tr>
<tr>
<td>PIG</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Rhabdomyolysis</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Septicaemia</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>Snakebite</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>

Out of 50 cases, 37(74%) patients were managed conservatively and 13(26%) patients underwent hemodialysis. Among the patients managed conservatively 1(2%) patient died and among those who underwent hemodialysis 4(8%) patients died.

Out of 50 cases studied, 45(90%) patients survived. Mortality was seen in 5(10%) patients. 4 patients had AKI following septicaemia and one patient died due to drug induced renal failure.

Discussion

In the present study, vomiting and oliguria were most common symptoms comprising of 92% and 80% respectively. This finding is comparable with other studies done by Singhal AS et al., which showed that oliguria was seen in 85.2% of patients and that 80% of patients had vomiting. In the present study, fever was seen in 70% of patients. However, this symptom was not observed in other studies. This could be explained by higher incidence of AKI associated with infections like malaria, leptospirosis in the present study.

In the present study, about 2(4%) of the patients had obstructive uropathy. This was comparable to a study done by Singhal AS et al., about 5% of patients had obstructive uropathy. Hakim Al et
al., in their study 9% of patients had AKI following bladder outlet obstruction. In this present study good results were obtained with conservative management. One patient who died had septicaemia and respiratory failure. This was comparable to a study done by Hakim Al .et al.

In the present study, 38(76%) patients had AKI due to renal cause. Majority of patients had malaria 12(24%) with falciparum more common than vivax. This could be because; the study was done in a malaria endemic area. Other common presentations were septicaemia in 6(12%) patients, drug nephrotoxicity 6(12%), leptospirosis 3(6%), snakebite 2(4%), acute gastro enteritis 5 (10%), Rhabdomyolysis 1(2%), congestive cardiac failure 1 (2%) and post infectious glomerulonephritis was seen in 2(4%) patients. Singhal AS et al., in their study found that malaria was the predominant cause of AKI involving about 46% of patients followed by snakebite (20%) patients, acute GE 12% patients, septicaemia 12%, drug nephrotoxicity 3% and acute gastroenteritis in 2% of patients. 

**Conclusion**

In this study 50 patients were studied prospectively admitted between August 2019 to August 2020. The clinical feature were studied. It was observed that clinical features were almost in accordance with studies conducted earlier. Oliguria and vomiting were still continuous to be the predominant symptoms in acute kidney injury. However we observed malaria was the predominant cause of acute kidney injury and these patients were recovered with conservative management and antimalarials. Other causes of renal failure in our study were similar to other studies like drug nephrotoxicity, acute gastroenteritis and septicaemia. About 90% patients were survived. 74% of patients were treated conservatively and 26% patients underwent haemodialysis. We observed that early diagnosis and early intervention were probably responsible for good survival rate.

**Limitation**

The study is done in a limited number of patients. Results may vary when done in a large number of subjects.

**References**