A PROSPECTIVE STUDY OF ETIOLOGY, CLINICAL PROFILE AND OUTCOME IN PATIENTS WITH FEVER, JAUNDICE AND ACUTE KIDNEY INJURY AT MEDICINE DEPARTMENT OF JLNMC, BHAGALPUR, BIHAR

OBJECTIVE:
To study etiology, risk factors, various clinical and lab parameters and outcome of patients presenting with fever, jaundice and acute kidney injury.

MATERIALS AND METHODS:
An open prospective study was done on 100 patients presented with triad of fever, jaundice and acute kidney injury (AKI) in the Department of Medicine of Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar from September 2018 to November 2019. Patients having temperature more than >100 F, serum creatinine ≥1.3 mg/dL or a 50% increase from baseline or a reduction in urine output (documented oliguria of <0.5 ml/kg/hr for >6 hours), serum bilirubin >1.8 mg/dL were included in the study. A detailed history, clinical examination and investigations were done to find the cause of these derangements and all the patients were managed accordingly.

RESULTS:
A total 100 patients were included in study out of which 70% were males. Out of 100 patients, 50% were of septicemia, 34% were having malaria, 12% had acute pancreatitis and 4% patients were of dengue. Out of 50 septicemia patients, 35(70%) were male, out of which 11(31.42%) were of >55-65 years of age. Out of 17 deaths, 13(76%) were males. Among total death, 11(22%) were in septicemia followed by 5(14.70%) in malaria patients.

CONCLUSION: Many infectious and non-infectious diseases like malaria, septicemia, acute pancreatitis, dengue fever etc. can present with fever, jaundice and deranged renal functions. This triad of presentation is associated with high morbidity and mortality and the advanced age, male gender presence of anemia were the risk factors for high mortality. AKI occurs most commonly in association with P. falciparum malaria. Early diagnosis and prompt management including dialysis can reduce mortality and expedite recovery of renal function.

KEYWORDS

INTRODUCTION:
Fever, jaundice and acute kidney injury (AKI) can be a common presentation of many tropical infections and some non-infectious diseases. Infections are an important cause of morbidity and mortality, responsible for around 13 million deaths in a year; out of which majority are in developing countries. The causes of the triad of fever, jaundice and acute kidney injury can be but not limited to malaria, viral hemorrhagic fevers including dengue, leptospirosis, and septicemia of any etiology.

Septicemia is characterized by a generalized inflammatory reaction and activation of coagulation and fibrinolytic cascades, leading in endothelial injury. AKI is one of the complications of sepsis. Studies have shown higher mortality in patients with septic AKI (74.5%) compared to in those whose renal failure did not result from sepsis (45.2%).

Clinical presentation of severe malaria more frequently involves liver and kidney. The incidence of AKI in severe malaria varies from 1-60% with a very high mortality, whereas incidence of jaundice varies from 8 – 37%.

Dengue is one of the most quickly spreading mosquito-borne viral diseases in the world. Incidence of hepatic and renal dysfunction along with bleeding is increasing in dengue fever.

AKI is a complication of Septicemia, malaria and Dengue. AKI is a protean syndrome characterized by a rapid decline in the glomerular filtration rate and retention of nitrogenous waste products such as creatinine. The etiology of AKI is usually multifactorial due to hyperbilirubinemia, intravascular hemolysis, volume depletion, hypoxia, shock, pigment nephropathy, disseminated intravascular coagulation and sepsis.

The differential diagnosis of patients presenting with fever and multiorgan involvement is important particularly in tropical countries where malaria and dengue are epidemic.

ABSTRACT

INTRODUCTION:
An open prospective study was done on 100 patients presented with triad of fever, jaundice and acute kidney injury (AKI) in the Department of Medicine of Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar from September 2018 to November 2019. Patients presented with temperature >100F, serum creatinine ≥1.3 mg/dL or a 50% increase from baseline or a reduction in urine output (documented oliguria of <0.5 ml/kg/hr for >6 hours), serum bilirubin >1.8 mg/dL were included in the study. Patients with established chronic liver and kidney disease were excluded from the study.

A detailed history and clinical examination was done along with investigation like complete blood count (CBC), peripheral blood smear (thin and thick) for malaria parasite (MP), blood sugar, serum bilirubin, serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), urea, creatinine, serum protein, serum electrolyte, x-ray chest, arterial blood gas (ABG) if needed, and serum IgM for dengue in selective patients. The tests were repeated as indicated. Microscopic examination of blood films was done which is accepted as the current universal “gold standard” for the diagnosis of malaria. All statistical analysis was done using epical 2000. P value of <0.05 was taken as significant.

RESULTS:
Out of 100 patients 50% were of septicemia, 34% were having malaria, 12% had acute pancreatitis and 4% patients were of dengue (table 1). Out of 50 septicemia patients, 35(70%) were male and 15(30%) were female. Out of 35 male patients of septicemia, 11(31.42%) were of >55 years of age and from 15 female, 3(20%) belong to age group of >55 years. Among 34 malaria patients there were 24 (70%) males and 6 (18%) females. Out of 34 malaria patients, 12% had acute pancreatitis and 4% patients were of dengue. Out of 35 male patients of malaria, 12% had acute pancreatitis and 4% patients were of malaria, 12% had acute pancreatitis and 4% patients were of dengue, 4% patients were of malaria. Out of 17 deaths, 13(76%) were males. Among total deaths, 11(22%) were in septicemia followed by 5(14.70%) in malaria patients.

TABLE - 1

<table>
<thead>
<tr>
<th>Etiology</th>
<th>No of cases</th>
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<td>Male (%)</td>
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<td>Total</td>
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Patients of dengue had anemia. Bilirubin and slightly raised serum creatinine. Moreover, all the failure in 61% of dengue patients, whereas all patients had raised can results in to mortality. 83% respectively in patients with acute pancreatitis. Similar results and 79.41% patients had anemia, similar to Amravati et al who had malaria were found with raised serum creatinine and bilirubin level countries as compared with females. In present study all cases of could be explained by more outdoor activities among males in Asian males. Our analysis of malaria patients with AKI revealed that it was Amravati et al has reported malaria with AKI as more common in adult age. He also showed that deranged renal and liver function was present in all cases of septicemia, malaria and acute pancreatitis. However the limitation of our study is the small no of patient population.

## DISCUSSION:
Since ages infectious diseases are the major cause of morbidity and mortality. The presentation of triad of fever, jaundice and acute kidney injury is common in various infections like malaria, dengue or septicemia of any underlying cause.

Out of our 100 patients, septicemia, malaria, acute pancreatitis and dengue were seen in 50%, 34%, 12% and 4% respectively. Out of our 100 patients, septicemia, malaria, acute pancreatitis and dengue were of > 55 years of age and anemia was present in 3(25%). All patients of dengue were below the age of 50 years.

Out of 100 patients, 12% had abdominal pain, 67% had decreased urine output and diarrhea was present in 30% of patients. Fever, yellowish discoloration of sclera (marker of jaundice) was present in all the patients.

Total Leukocyte count (TLC), serum bilirubin and serum creatinine were deranged in all cases of septicemia, malaria and acute pancreatitis. Out of 11 mortality in septicemia patients, 9(81.81%) were having serum creatinine ≥3 times baseline or serum creatinine>4 mg/dL. Out of 5 mortality in malaria patients, 4(80%) were with serum creatinine ≥3 times of baseline or serum creatinine>4 mg/dL.

<table>
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<td><strong>Table 2: Distribution of various parameters in mortality cases</strong></td>
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<table>
<thead>
<tr>
<th>Etiology</th>
<th>Parameters</th>
<th>TLC$</th>
<th>Serum bilirubin</th>
<th>Serum creatinine@</th>
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</thead>
<tbody>
<tr>
<td>Septicemia</td>
<td>7(63.63%)</td>
<td>11(100%)</td>
<td>11(100%)</td>
<td>11(100%)</td>
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<tr>
<td>Malaria</td>
<td>3(50%)</td>
<td>5(100%)</td>
<td>5(100%)</td>
<td>5(100%)</td>
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<tr>
<td>Acute pancreatitis</td>
<td>1(100%)</td>
<td>0(0)</td>
<td>0(0)</td>
<td>0(0)</td>
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<td>Dengue</td>
<td>0(0)</td>
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*Male < 13 mg%, Female < 12 mg%, Total Leukocyte Count>12000, >=1.18 mg/dL, >=1.3 mg/dL or 50% increase from baseline. The only death in acute pancreatitis case was of male of >65 years of age. There was 34% mortality in septicemia patients and it was more among males (57.14%) with the age of more than 55 years (14 %), this is similar to the reports of Salive ME et al. The mortality due to malaria was 14.7% in our study and was higher in males which is similar to other workers. The only death in acute pancreatitis group was male of age >55 years. These results confirm that mortality was more common among male adults.

In our study the advanced age, male gender and anemia were the probable risk factor for poor outcome in cases of septicemia, malaria and acute pancreatitis. However the limitation of our study is the small no of patient population.

## CONCLUSION
To conclude in tropical countries like India, triad of fever, jaundice and AKI can be a common presentation and needs detailed differential diagnostic work up for institution of prompt treatment to reduce the morbidity and mortality.

## REFERENCES: