Original article:

Study on admitted cases of complicated malaria in Government General Hospital, Guntur

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Abstract:

Introduction: Failure of early diagnosis and complete treatment of malaria cases will lead to complicated or severe malaria which is a life threatening condition.

Material & Methods: Present study was a hospital based prospective study done under the Department of General Medicine, Government General Hospital & Guntur Medical College. Duration of the study was for one year. All confirmed malaria cases aged above 18 years and satisfying at least one or more parameters of criteria for complicated malaria as per WHO guidelines were included in the study.

Results: A total of 52 patients who were diagnosed to have severe malaria during the study period of one year were studied. The mean age of the patients was 38.25±12.65 years. Out of which, majority (72%) were males and 28% females. Complications noticed in the present study were cerebral malaria in one fourth of the study population (25.8%), acute renal failure (32.7%) and Acute Respiratory Distress Syndrome (ARDS) (6.2%).

Conclusions: A high proportion of complications were noticed in severe malaria cases leading to significant morbidity and mortality.

Keywords: complicated malaria, acute renal failure, Acute Respiratory Distress Syndrome, hospital

Introduction

Malaria is a potentially life threatening parasitic disease caused by Plasmodium parasite. Malaria is a public health problem in several parts of the country. About 95% population in the country resides in malaria endemic areas and 80% of malaria reported in the country is confined to areas consisting 20% of population residing in tribal, hilly, difficult and inaccessible areas.1 According to 2012 estimates of National Vector Borne Disease Control Programme (NVBDCP ), total malaria cases in India were 1.06 million with almost 50% cases due to falciparum and 519 deaths.1

The priority requirement is the early recognition of signs and symptoms of severe malaria that should lead to prompt emergency care of patient.

The following are the World Health Organization (WHO) guidelines of clinical diagnosis of severe malaria.

One or more of the following, occurring in the absence of an identified alternative cause:2

1. Cerebral malaria
2. Acute renal failure
3. Acute respiratory distress syndrome
1. Impaired consciousness: A Glasgow coma score < 11 in adults or a Blantyre coma score < 3 in children
2. Prostration: Generalized weakness so that the person is unable to sit, stand or walk without assistance
3. Multiple convulsions: More than two episodes within 24 hours
4. Acidosis: A base deficit of > 8 mEq/L or, if not available, a plasma bicarbonate level of < 15 mmol/L or venous plasma lactate ≥ 5 mmol/L.
5. Hypoglycaemia: Blood or plasma glucose < 2.2 mmol/L (< 40 mg/dL)
6. Severe malarial anaemia: Haemoglobin concentration ≤ 5 g/dL or a haematocrit of ≤ 15% in children < 12 years of age (< 7 g/dL and < 20%, respectively, in adults) with a parasite count > 10 000/µL.
7. Renal impairment: Plasma or serum creatinine > 265 µmol/L (3 mg/dL) or blood urea > 20 mmol/L
8. Jaundice: Plasma or serum bilirubin > 50 µmol/L (3 mg/dL) with a parasite count >100 000/µL.
9. Pulmonary edema: Radiologically confirmed or oxygen saturation < 92% on room air with a respiratory rate > 30/min, often with chest in drawing and crepitations on auscultation
10. Significant bleeding: Including recurrent or prolonged bleeding from the nose, gums or venepuncture sites; haematemesis or melaena
11. Shock: Compensated shock is defined as systolic blood pressure < 70 mm Hg in children or < 80 mm Hg in adults, with evidence of impaired perfusion (cool peripheries or prolonged capillary refill).

Materials & Methods:
Present study was a hospital based prospective study done under the Department of General Medicine, Government General Hospital & Guntur Medical College. Study was done on the admitted cases of adult patients of malaria who have been confirmed either by peripheral blood film or rapid diagnostic tests. Duration of the study was for one year. After complete clinical and laboratory investigations, the categorization of severe malaria and treatment was done according to WHO guidelines.

Selection Criteria: Inclusion criteria-All confirmed malaria cases aged above 18 years and satisfying at least one or more parameters of criteria for complicated malaria as per WHO guidelines.
Exclusion criteria- Patients suffering from co morbid conditions like Diabetic patients on metformin therapy, HIV patients on Anti Retroviral Therapy, Chronic Renal Failure patients, Congestive Cardiac Failure patients, Chronic liver disease were excluded from the study.

Data entry and analysis was done using Microsoft Excel 2010 version and data was presented in percentages and figures. Appropriate statistical tests were applied wherever necessary with p <0.05 considered statistical significant.

Results & Discussion:
A total of 52 patients who were diagnosed to have severe malaria during the study period of one year were studied. The mean age of the patients was 38.25±12.65 years. Out of which, majority (72%) were males and 28% females.
Clinical profile of complicated malaria cases: With regards to clinical profile, all patients (100%) had fever, hepatomegaly & splenomegaly were seen in almost 50% of the patients, pallor (41.8%), jaundice (36.8%) and other manifestations were hypotension (13.6%), unconsciousness (11.7%) and convulsions (9.4%)

Figure No 1: Clinical profile of complicated malaria

Complications noticed in the present study were cerebral malaria in one fourth of the study population (25.8%), acute renal failure (32.7%) and Acute Respiratory Distress Syndrome (ARDS) (6.2%).

Table No 1 Clinical presentation and complications of severe malaria

<table>
<thead>
<tr>
<th>Complications</th>
<th>Number (n=52)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebral malaria</td>
<td>13</td>
<td>25.8%</td>
</tr>
<tr>
<td>Jaundice</td>
<td>19</td>
<td>36.8%</td>
</tr>
<tr>
<td>ARF</td>
<td>17</td>
<td>32.7%</td>
</tr>
<tr>
<td>ARDS</td>
<td>3</td>
<td>6.2%</td>
</tr>
<tr>
<td>Anemia</td>
<td>21</td>
<td>41.8%</td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td>3</td>
<td>5.4%</td>
</tr>
</tbody>
</table>
A clinical study of complicated malaria by Madhav et al (2015) observed that out of 75 patients 60% had jaundice, 60% had acute renal failure, 60% had anemia, 37% had cerebral malaria, and 37.33% had hypoglycemia. Overall recovery rate was 82.6% while mortality was 17.35%. High case fatality was seen with acute respiratory distress syndrome (ARDS) (100%).

A prospective study on adult patients of severe malaria by Kochar et al in northwest India found that the risk of developing severe malaria was greatest in patients of mixed infection [53.01%]. Hepatic dysfunction was the commonest pernicious syndrome. Multi organ dysfunction was present in 40.26% patients; the risk of mortality in severe malaria was 6.31%.

Another similar study in western Maharashtra found that in the complicated malaria, most common presentation was jaundice and anemia. Cerebral malaria, ARF and ARDS were uncommon presentation. Overall case fatality rate of complicated P. falciparum malaria was 10.63%. The case fatality rate was highest with multi-organ dysfunction (100%). Similar observations were seen in few other studies done in India.

Conclusions:
A high proportion of complications were noticed in the present study in severe malaria cases leading to significant morbidity and mortality. Importance need to be given to early diagnosis and complete treatment of malaria cases which will reduce the burden of complicated malaria.

References: