



Nephrology

RENAL COMPLICATION OF MALARIA – A STUDY DONE AT A TERTIARY CARE CENTRE

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ABSTRACT **INTRODUCTION:** The reappearance of malaria in the Indian subcontinent has become a foremost national health dilemma with a significant morbidity and mortality = .The awareness of the factors that affect the susceptibility of the host can be an added advantage to effective predict and fore see the complications malaria. There has been increasing evidence that the severity of malaria has associated with it the increase in the incidence of renal dysfunction. In the district of Dakshina Kannada, malaria is rampant and considered as an endemic disease. In view of the above said we did a conduct a study on the relationship between renal dysfunction and malarial infection in the district of Dakshina Kannada

MATERIALS AND METHODS: The study was conducted in a time frame of three years between 2015 January and February 2019 at a two medical college and research hospitals at Dakshina kannada. During this period a total of 750 cases of malaria who agreed to participate in the study and met the pre - defined criteria set for the study .

RESULTS AND OBSERVATIONS: In the present study we had 81.6%, 612 cases males and 18.4%, 138 cases females , the gender difference was statistically highly significant with a chi square test value $\chi^2=74.476$. $P=.000<0.001$. Malaria was found to be most common in the 21-30 years of age group (48%, 360 cases) and less at the older age group those patients with malaria who were of the age 60 years and above $P=.000<0.001$, the commonest malarial infection was vivax malaria that was seen in 68.8% (516 cases) followed by mixed in 14.93% , 112 cases and falciparum in 16.27% , 122 cases of the total malarial cases .Maximum complications was seen in the age group of 21-30 years of age group (51.4%) whereas the least was seen in patients who were above 60 years (2.7%) %). Both Falciparum and mixed infections were commonly seen in the age group of 21-30 years with values of 9.2% and 18.3% respectively. 256 cases , 34 % had complications Among complications the commonest seen was hepatic dysfunction in 43.75% , followed by renal dysfunction in 74 cases, 28.91% Acute respiratory distress syndrome comprising of 58 cases , 22.66% and nervous system involvement 12 cases 4.68% Falciparum infected patients showed more number of ARDS cases whereas mixed malarial patients showed more number of acute renal dysfunction cases .

KEYWORDS : malaria, renal failure , kidney

INTRODUCTION

The reappearance of malaria in the Indian subcontinent has become a foremost national health dilemma with a significant morbidity and mortality^(1,2). The awareness of the factors that affect the susceptibility of the host can be an added advantage to effective predict and fore see the complications malaria⁽¹⁻³⁾. The heritable constitution of an individual causes profound variation in their response to malarial infection are likely to indicate an individual's susceptibility^(4,5). There has been increasing evidence that the severity of malaria has associated with it the increase in the incidence of renal dysfunction.

In the district of Dakshina Kannada , malaria is rampant and considered as an endemic disease. In view of the above said we did a conduct a study on the relationship between renal dysfunction and malarial infection in the district of Dakshina Kannada

MATERIALS AND METHODS

The present study was carried out at various hospitals and private clinics of Mangalore after. The relevant clinical data in terms of demographic- age, sex, place, occupation and clinical history were obtained from the patient. Following this the patient underwent a detailed clinical examination and relevant investigations were conducted. Patients with or without fever and who are either smear positive for malarial parasite or positive for quantitative buffy coat (QBC) II system were included in the present study . The study was conducted in a time frame of three years between 2015 January and December 2018 at two prestigious medical college and research hospitals at Dakshina kannada. During this period a total of 750 cases of malaria who agreed to participate in the study and met the pre - defined criteria set for the study . the following were excluded from the study

Those who had antimalarial medications within two weeks prior to the blood sample collection ,Non malarial fevers. ,Blood cancers . ,History of renal dysfunction in the past irrespective of the cause.

Patients who are on medications that impaired renal functions
Patients with a history of indigenous medication abuse.

The operational definitions that used were in the present study were as follows :-

Complicated malaria (World Health Organization criteria for complicated malaria) Impaired consciousness of the patient ,Prostration and extreme weakness, The presence of jaundice ,The presence of Cerebral malaria ,The presence of Generalized convulsions,The presence of Anemia that is normochromic in nature,The presence of Acute renal failure ,The presence of hypoglycemia ,The presence of Fluid disturbances , electrolyte disturbance and acid base balance disturbances . presence of pulmonary oedema, algid malaria, Disseminated intra- vascular coagulation .The presence of Hyperparasitemia, Malarial haemoglobinuria

Mild Malaria : The presence of acute febrile illness but no features of severe malaria .

Moderate Malaria : The malaria that does not fulfill the criteria that is needed for severe malaria.

Severe malaria : Those with cerebral malaria (in coma and unable to localize a painful stimulus) . Fully conscious but either prostrated (unable to maintain a sitting posture) or in respiratory distress (abnormally deep breathing with intercostals or subcostal recession)

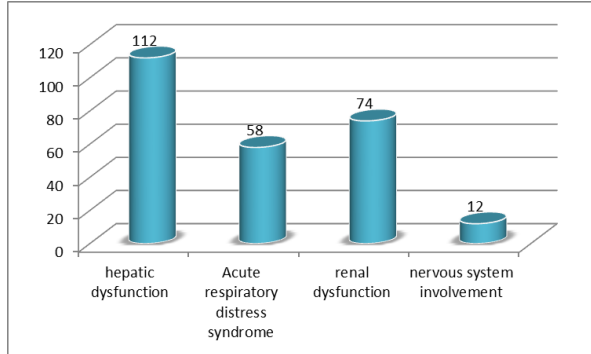
Statistical Methods

The data was analyzed by SPSS software 23. Version . P value of less than 0.05 was taken as significant

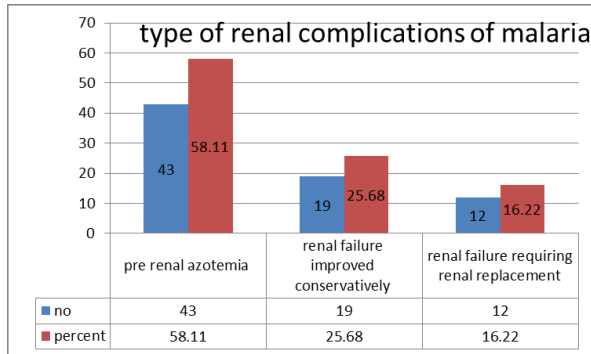
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Graph 1 complications of malaria



Graph 2: type of renal complications of malaria

DISCUSSION

Malaria is a tropical diseases that is spread to the humans through the bite of the mosquito, a decade ago there was a declining trend in the prevalence of malaria ,but the past few years there had been a slow increasing trend with increased morbidity.

Though the disease is centuries old the exact pathogenesis of malaria is till date incompletely understood, but there is enough evidence to suggest that severe disease is related to the sequestration of those red blood cells that are affected by the malarial parasite in the vascular beds inside the various vital organs.

There are three forms that are attributed to cause human malaria Vivax malaria , mixed infection and Falciparum malaria.Vivax malaria is the commonest and the mildest as compared to its counterpart the falciparum malaria , though less common has a higher incidence of complications. An adhesion property that is found in some of the P. Falciparum isolates which has been associated with severe malaria is rosette formation.

Renal involvement is a well-known fact in malaria. The factors that contribute towards it are mostly the pre-renal factors like reduced fluid intake combined with significant fluid losses as a result of pyrexia.

In the present study we had a prevalence of 9.8% of renal failure in all cases evaluated with malaria . Though the number may be small a higher number occurred in the younger age group less than 30 years. In terms of morbidity, loss of working days and the psychological impact on the individual it is a significant number .

In deeper evaluation of the type of renal complications of malaria we found that pre renal azotemia was seen in 43 cases, 58.11 percent, renal failure improved conservatively occurred in 19 cases 25.68

percent, renal failure requiring renal replacement 12 cases 16.22 percent.

CONCLUSION

We conclude that renal involvement in malaria is common and care should be taken to identify it early in the course of the disease to prevent morbidity .

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