Study of Complications of Plasmodium Vivax Malaria Mono Infections

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Abstract: Background: Malaria is a common parasitic diseases of humans, affecting approximately 243 million people worldwide of which Plasmodium Vivax(P. Vivax) is the most widely distributed with up to 2.5 billion people at risk and an estimated 70-80 million cases every year. Objectives: To study the complications and outcome of P. Vivax malaria mono infections at SMIMER hospital, Surat, Gujarat. Methods: A prospective two years study was conducted at SMIMER hospital involving a cohort of 100 patients with peripheral smear positive for P. Vivax malarial parasite. Observation and Results: Hundred patients comprised of 70 males and 30 females. Majority of the patients were in the second and third decade of life. Jaundice was present in 17% of patients and vomiting in 36% of the patients. Hepatomegaly was seen in 38% cases and 35% cases had splenomegaly. ARDS was seen in 4% cases. Acute kidney injury was seen in 5% and cerebral malaria was seen in 5% cases. Multi organ dysfunction was seen in 3% cases. There were 3 deaths in the study group due to multi organ dysfunction. Conclusion: Life threatening complications such as ARDS, AKI, cerebral malaria and MODS can be commonly seen in P. Vivax mono infections. [A Chudhary Natl J Integr Res Med, 2018; 9(1):121-122]

Key Words: P Vivax Malaria, Monoinfection, Complications

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Introduction: William Osler has said that "Humanity has but 3 great enemies; fever, famine, and war; of these by far the greatest, by far the most terrible is fever".Malaria has been affecting mankind from the past. The story of malaria is fascinating. It is generally ignored as a simple febrile illness; however it can also have life threatening outcomes. For centuries it prevented any economic development in vast regions of the world. It continues to be a huge social, economical and health problem in many parts of the world. Incidence of malaria worldwide is estimated to be 300-500 million clinical cases per year causing more than one to three million deaths every year[1]. It is endemic in African tropical countries and in India.

According to the latest WHO estimates, there were about 207 million cases of malaria in 2012 and an estimated 627 000 deaths. 90% of all malaria deaths occur in sub-Saharan Africa Region[2].Malaria also continues to be one of the important public health problems in India. As per National Vector Borne Disease Control Program report in 2011 and 2012, total 1.31 million and 1.06 million cases of malaria were reported in India respectively. Total No. of deaths in 2011 and 2012 were 754 and 519 respectively in India[3].

P. Vivax is widely distributed with up to 2.5 billion people at risk and an estimated 70-80 million cases every year[4]. Although P. Vivax malaria has a huge health burden and severely impacts the longevity and general prosperity of the people, research on vivax malaria has been overlooked and over shadowed by P.falciparum[4]. Recent studies have shown that complications associated with P. Vivax are on the rise and outcomes are similar to that of P.falciparum malaria[4,5]. Hence a study on the complications of P. Vivax malaria would help gather information on the morbidity and mortality caused by the disease and helps reduce the burden and unexpected mortality due to the disease.

Aims & Objectives: To study the complications and outcome of Plasmodium vivax malaria mono infections in patients admitted in SMIMER medical college, Surat.

Method: This prospective study was carried out between August 2013 to October 2014. A total of 100 patients admitted to the hospital with peripheral smear positive for P. vivax were selected using purposive sampling techniques. They were followed from admission till recovery, discharge or death whichever was earlier. The study has been approved by Ethical committee SMIMER.

Patients included in this study were aged>=17 Yrs and had presence of asexual stage of P. Vivax on peripheral smear examination. Patients who were excluded were aged less than 17 and had mixed infection of P. Vivax and P. Falciparum. In all cases detail history and thorough physical examination and investigation were carried out.Data collected was analyzed by frequency, percentage, mean, standard

deviation and chi-square test. Once the patient was diagnosed to have malaria, they were started on antimalarial drugs according to the new WHO guidelines for treatment of malaria. Other supportive treatment was given according to the patients conditions.

Observation & Discussion: The maximum number of patients was in age group of 17 - 24 years and was male. Ratio of male to female was 2.33:1.Fever was the presenting complaint in all the patients (100%). Jaundice was seen in 17% and vomiting in 36% cases. Headache was seen in 93% patients. In clinical findings pallor was seen in 35% patients and 17% patients had icterus. Splenomegaly was present in 35% patients and 38% patients had hepatomegaly. Respiratory involvement in the form of breathlessness (16%) and ARDS (5 %) was seen. CNS manifestations were seen in 5% cases in the form of altered sensorium (4%) and seizures (1 %).

Laboratory findings revealed that 17% patients had an Hb less than 6 gm/dl. Haemoglobin of less than 12 gm/dl was seen in 64 % patients. The mean Haemoglobin in the study population was 9.33 gm./dl. Thrombocytopenia of <1.5 lakh /µL was seen in 86 (86%) patients in our study and severe thrombocytopenia (<50,000/µL) was seen in 29 (29%) cases. S. Bilirubin of more than 3 mg/dl was seen in 20 (20 %) cases.

Complications of malaria like cerebral malaria was seen in 5 (5 %) cases of the study population of which 4% of the patients presented with altered sensoriumand one patient had seizures. ARDS was seen in 5 (5 %) cases. Acute kidney injury was seen in 5 (5%) patients. Dialysis was done in all the 5 (5%) patients who developed acute kidney injury. Metabolic acidosis was seen in 5 (5%) cases.

Conclusion: This study highlights the fact that P. Vivax malaria though traditionally considered to be a benign entity can also have a severe and complicated course which is usually associated with P. Falciparum malaria. Thrombocytopenia and hepatic dysfunction are commonly seen and are early indicators for the severity of the vivax form of the disease. Life threatening complications such as ARDS, AKI, cerebral malaria and MODS do complicate benign tertian vivax malaria as seen in our study.

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