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Thrombocytopenia as a Clue of Vivax Malaria in Endemic Region, Sudan

Bakri Y. M. Nour[1]

[1] University of Gezira

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Abstract

Reduction in circulating platelets is observed relatively frequently in cases of malaria due to P. vivax. 61 patients with confirmed vivax malaria were enrolled in this study and the platelets were counted by hematological analyzer. our study revealed that 77.1

Index terms— vivax malaria; thrombocytopenia; sudan.

1 Introduction

Thrombocytopenia is reported especially in severe P. falciparum malaria and few repots in isolated P. vivax infection [Pal Singh **??**akkar 2002].

Thrombocytopenia is less studied in vivax malaria causes neg¬ligible of hidden mortality. The pathogenesis of thrombocytopenia in malaria is unclear, although increased platelet destruction rather than decreased production appears to be responsible **??**Piguet P. F. et al 2002]. In general, the underlying mechanisms of thrombocytopaenia in malaria are peripheral destruction, excessive sequestration of platelets in spleen, and excessive use of platelets associated with the disseminated intravascular coagulation phenomenon [Gupta NK et al, 2013]. In addition to the reduction in the number of platelets, platelet function is also compromised in malaria [Greisenegger S, et al 2004]. In most laboratories, a normal platelet count is between 150,000 to 450, 000/µl. By definition, 5% of the population will have counts outside the "normal" range. No generally accepted definition of mild, moderate or severe thrombocytopenia exists. For cancer patients receiving treatment, the National Cancer Institute (NCI) has developed the Common Toxicity Criteria to describe severity of thrombocytopenia. Platelet counts of 75,000 to 150,000/ µl are defined as grade 1 thrombocytopenia, 50,000 to <75,000/ µl as grade 2, 25,000 to <50,000/ µl as grade 3, and below 25,000/ µl as grade 4 thrombocytopenia. (CTCAE v3.0; www.ctep.cancer.gov/reporting/ctc.html), here we use this criteria for the classification of thrombocytopenia in vivax malaria patients.

2 Patints and Methods

It was a cross sectional observational, hospital based study conducted at Wad Medani Paediatric teaching hospital and Wad Medani teaching hospital in central Sudan, All patients with vivax malaria presenting to the two hospitals during august 2013 to December 2013 were included in the study after written consent. The thick and thin blood smears were prepared and stained with Giemsa according to the WHO guidelines and studied by a medical parasitologist. and the platelets counts were done by an auto analyzer machine (Hematological analyser SysMix-KXN21, Roche, German) and rechecked by peripheral blood smear. Platelet counts of 75,000 to 150,000/dL are defined as grade 1 thrombocytopenia, 50,000 to <75,000/dL as grade 2, 25,000 to <50,000/dL as grade 3, and below

3 Result

Sixty one Thin & Thick blood film from febrile cases showed positive P. vivax mono-infection by light microscope and the parasitaemia ranged from 1,070 to 42,800 parasites /µl of blood, most of the cases have different asexual stages from young trophozoite to schizont. The mean of platelets count were 112,016 /µl.

4 IV.

5 Discussion

6 Conclusion

Thrombocytopenia should be a consideration as a clue to the presence of malaria in endemic region and after excluding this easily treatable cause, further evaluation of thrombocytopenia should be undertaken. [1]

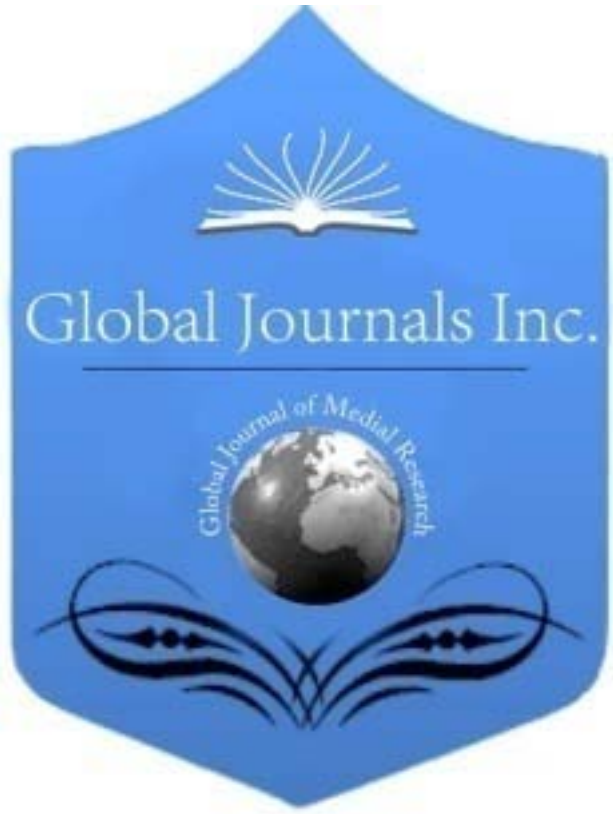

Figure 1:

1

P
). P. vivax represent 6.1% of malaria cases in Central and Eastern Sudan (Albadawi A. Talha 2014). Malaria is one of the leading causes of morbidity and mortality in Sudan. Reported malaria cases account for 9.3% of outpatients´ clinic visits and approximately 8.7% of hospital admissions. The malaria mortality is about 2.6% and fatality rate about 0.64% (FMOH 2014). Malaria is commonly associated with various degrees of hematological complications like anemia and thrombocytopenia. The anemia is usually due to varied reasons ranging from haemolysis to other complications like parasitic infections, folate, iron, and vitamin B12 deficiencies in endemic areas, antimalarials and further complicated by the co-ex-is-tence of tha-lassemia andother haemoglobinopathies [K. Ghosh and K. Ghosh 2007, S. N. Wickramasinghe et al 2000].

[Note: 5. Abdalla SI, Malik EM and Ali KM. The burden of malaria in Sudan: incidence, mortality and disability adjusted life years. Malar J 2007, 6:97.]

Figure 2: Table 1 :

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