

A Clinical Study on Thrombocytopaenia in Viral Fevers and Malaria

Ram Prasad¹, K. Surya Pavan²

¹Associate Prof. Kamineni Medical College, Narketpally, Telangana.

²Prof of Medicine, Apollo medical college, Chittoor, Andhra Pradesh.

Received: August 2017

Accepted: December 2017

Copyright: © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Thrombocytopaenia, decrease platelet count is seen in many viral fevers including hepatitis 'C', HIV infections and malaria which is very common in developing countries.^[1] In Thrombocytopaenia due to viral Haemorrhagic fever, other features like increased haematocrit, leucopenia will present along with Thrombocytopaenia. Automated quantitative D3 analysis is used to detect Thrombocytopaenia in our study the commonest causes of Thrombocytopaenia is vivax malaria. **Aims and Objectives:** This study is to evaluate the Thrombocytopaenia as diagnostic and prognostic tool in viral fevers and malaria. **Methods:** In our study we have examined 200 patients' acute febrile illness out of these 200 patients, 10 were diagnosed as dengue fever, 100 were diagnosed as Malaria. Thick and thin blood smear slides were prepared and examined by pathologist. **Results:** Out of 200 patients 110 were diagnosed as Malaria, 10 patients were diagnosed as Dengue fever Thrombocytopaenia is observed in 60 patients. **Conclusion:** Thrombocytopaenia is common in viral fevers and Malaria. After exclusion of dengue fever, malaria should be considered in all the patients with low platelet counts.

Keywords: Viral fever, Thrombocytopaenia, Vivax Malaria, falciparum malaria, anaemia.

INTRODUCTION

We have conducted this study on 200 patients who were having the fever during the period of June 2016 to June 2017 out of 200 patients 10 dengue fever cases which were diagnosed by detection of specific viral protein NS1 by ELSA, Thrombocytopaenia, IgG and IgM is also positive. 5 cases were diagnosed as HIV positive Thrombocytopaenia is seen in HIV cases. 20 cases were diagnosed as urinary tract infections, based on symptoms and urine examination. 15 cases diagnosed as acute bronchitis based on symptoms and signs. 40 cases were nonspecific viral infections remaining 110 cases were malaria male were 60 patients, females were 50.

Thrombocytopaenia is also associated with anaemia due to iron deficiency and folate deficiency, Alcoholism will also cause Thrombocytopaenia, Heparin therapy and pregnancy also cause Thrombocytopaenia Thrombocytopaenia may be associated with bleeding tendency which is one of the severe manifestations of plasmodium falciparum malaria.^[2] The presence of Thrombocytopaenia in

acute febrile travellers returning from tropical areas has become a highly sensitive clinical marker for malaria diagnosis.^[3] A number of studies confirmed the association of Thrombocytopaenia to malaria but the causes of Thrombocytopaenia is poorly understood. The mechanism speculated leading to Thrombocytopaenia are coagulation disturbances, splenomegaly, oxidative stress, bone marrow alterations, anti-body mediated platelet destruction.^[4,5,6] With the treatment, Platelet count becomes normal.

MATERIALS AND METHODS

In our study we have examined 200 patients with fever out of these 200 patients 10 patients were diagnosed as dengue fever. All the 10 cases were having Thrombocytopaenia. 5 HIV cases were diagnosed by ELISA and confirmed by western blot. Thrombocytopaenia is seen in 3 cases Thrombocytopaenia is commonly associated with advanced HIV infections.^[7]

Malaria is diagnosed in 110 patients. Males 60 females 50. Thick and thin blood smear slides were prepared and examined by pathologist. Wright stain is used for thin smear studies and Giemsa stain is used for thick blood smear. Malaria is ruled out when three consecutive smears were negative other investigation like serum bilirubin, SGOT, SGPT and other liver function tests. Blood urea, serum

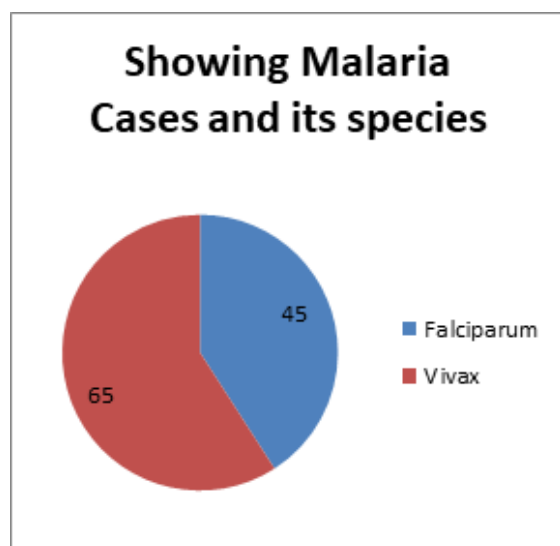
Name & Address of Corresponding Author

Dr. K. Surya Pavan
Prof of Medicine, Apollo medical college,
Chittoor, Andhra Pradesh.

creatinine. Grading of Thrombocytopaenia was also done grades I - platelets count 75,00-1.5l/dl. Grade-II-50,000 to 75,000. Grade-III 25,000 to 50,000. Grade-IV <25,000/dl.

RESULTS

In our study, we have examined 200 patients. Of the total 200 patients. Thrombocytopaenia is observed in other than malaria like, Dengue fever, HIV. 2 Patients were on heparin therapy. Heparin therapy is known to cause Thrombocytopaenia out of 110 malaria patients vivax malaria diagnosed is 65 patients falciparum diagnosed in 45 cases.^[8] The range of platelets count is between 50,000 to 1,60,000 and is in non-malaria patients the platelets count between 35,000 to 1,30,000/dl counts. Grade-I Thrombocytopaenia is defined as platelets count from 75,000 to 1,50,000/dl and 50,000 to < 75,000/dl as grade-II. And grade-III is between 25,000 to 50,000/dl when platelets count is less than 25,000/dl is defined as grade-IV Thrombocytopaenia. In our study 110 patients were suffering from malaria 65 patients were from vivax and 45 patients from falciparum malaria out of these 110 patients, 05 patients were having platelets count below 25,000/dl i.e grade-IV, grade-III Thrombocytopaenia, i.e platelets count 25,000 to 50,000/dl is seen in 15 patients whereas 25 patients were having grade-II Thrombocytopaenia i.e platelets count is 50,000 to 75,000/dl and 15 patients were having Grade-I Thrombocytopaenia i.e platelets count is 75,000 to 1,50,000/dl According to Wilson's score.



DISCUSSION

In viral infections Thrombocytopenia is very common especially like dengue fevers it has got prognostic importance.^[9]

In malaria also Thrombocytopaenia is very common. It is mild to moderate. Sixty percent patients with

malaria showing Thrombocytopaenia in our study, it is closely associated with the study of Ghani who conducted in Saudi Arabia.^[10]

In Liberia study conducted by Manhood,^[11] 109 patients were having Thrombocytopaenia out of total 145 malaria patients. Thrombocytopaenia in malaria has got 80.11% sensitivity and 81.36% specificity and 63.87% in positive predictive value and 90.86% is negative predictive value. In another important study from India Patel et al the sensitivity of Thrombocytopaenia together with acute febrile syndrome is 100% for malaria diagnosis with specificity of 70% a positive predictive value of 86% and negative predictive value of 100%.^[12] In our study we have calculated sensitivity, specificity, positive, and negative predictive values and diagnostic accuracy at different levels of platelet count and have concluded that sensitivity and negative predictive value platelet high at low platelet count (75% and 64% and negative predictive value in 42% and 54% respectively) while specificity and positive predictive value is high at relatively at higher platelet count 90% specificity and 84% positive predictive value agent 45% and 60% respectively. The diagnostic accuracy remains almost the same at both counts around 63%

In our study we observe that patient with falciparum malaria is more common with low platelet count when compared with vivax malaria. Previously it was believed that it is more common in falciparum malaria recent studies show that thrombocytopaenia is equally or even more common in plasmodium vivax recent studies conducted in India sub-continent have found significant Thrombocytopaenia in plasmodium vivax malaria.^[13-20]

Recent report from Iran study shows that Thrombocytopaenia in plasmodium vivax is more common, than plasmodium falciparum and this is attributed to possible development of new genotype of plasmodium vivax.

CONCLUSION

Thrombocytopaenia in viral fever and malaria. After exclusion of dengue like fevers malaria should be considered in all patients with low platelets counts which can prevent complications and can be treated effectively.

REFERENCES

1. CMDT - 2016.
2. Harrison's principles of medicine - 19th Ed.
3. Ghosh K, Ghosh K. Pathogenesis of anemia in malaria: a concise review. Parasitology Research 2007;101(6): 1463-9. View at Publisher, View at Google Scholar, View at Scopus.
4. Wickramasinghe SN, Abdalla SH. Blood and bone marrow changes in malaria. Bailliere's Best Practice and Research in

- Clinical Haematology 2000;13(2): 277-99. View at Publisher, View at Google Scholar, View at Scopus.
5. D'Acromont V, Landry P, Mueller I, Pecoud A, Genton B. Clinical and laboratory predictors of imported malaria in an outpatient setting: an aid to medical decision making in returning travelers with fever. *American Journal of Tropical Medicine and Hygiene* 2002;66(5):481-6. View at Google Scholar, View at Scopus.
 6. Khan SSJ, Khan FR, Usman M, Zahid S. Malaria can lead to thrombocytopenia. *Rawal Medical Journal* 2008;33(2):183-5. View at Google Scholar, View at Scopus.
 7. Faseela TS, Roche RA, Anita KB, Malli CS, Rai Y. Diagnostic value of platelet count in malaria. *Journal of Clinical and Diagnostic Research* 2011;5(3):464-6. View at Google Scholar, View at Scopus.
 8. CMDT - 2016.
 9. Rasheed A, Saeed S, Khan SA. malaria. platelet count in malaria. *Pakistan Journal of phytopathology* 2008;19(486-8 View at Google Scholar.
 10. Grau GE, Mackenzie CD, Carr Redard M, Pizzolato G, Allasia C, CatrarldRoAC., Taylor TE, Molyneux ME. *The Journal of Infectious Diseases* 2003;187(3):461-6.
 11. Pain A, Ferguson DJP, Kai O, Urban, B.C. Lowe, B Marsh, K. Roberts, D.J.et al. Platelet-media;ed. clumping of plasmodium falciparum erythrocytes is a common adhesive phenotype and is associated with severe malaria. *Proceedings of the National Academy of Sciences of the United States of America* 2001;98(4) :1805-10.
 12. Niazi GA. Haematological aspect of malaria in a population based hospital, Saudi Arabia. *Journal of the Egyptian Society of Parasitology* 1995;25(3):787-93. View at Google Scholar, View at Scopus.
 13. Mert A, Ozaras R, Tabak F, Bilir M, Ozturk R, Aktuglu Y. Malaria in Turkey: a review of 33 cases. *European Journal of Epidemiology* 2003;18(6):579-82. View at Publisher, View at Google Scholar, View at Scopus.
 14. Mahmood A, Yasir M. Ttirombocytopenia: a predictor of malaria among febrile patients in Liberia. *Infectious Diseases Journal* 2008;14:41-4. View at Google Scholar.
 15. Lathia TB, Joshi R. Can hematological paranebterl: illness in the tropics?. *Indian j discriminate malaria from nonmalanous acute febrilereiut Gog 1 Journal of View at Scopus. e Scholar.* 9-44 *Sciences* 2004;58(6):23. View at Scopus
 16. Patel U, Gandhi G, Friedman S, Niranjana S. Thrombocytopenia in malaria. *Journal of the National Medical Association* 200496(9):1212 View at Google Scholar, View at Scopus.
 17. Akhtar MN, Jamil S, Amjad SI, Butt AR, Farooq M. Association of malaria with thrombocytopenia. *Annals of King Edward Medical College* 2005;11:536-7. View at Google Scholar.
 18. Rehman ZU, Alam M, Mahmood A, Mubarak A, Sattar A, Karamat KA. Thrombocytopenia in acute malarial infection. *Pakistan Journal of Pathology* 1999;10:9- 11. View at Google Scholar.
 19. Aggarwal A, Rath S, Shashi R. Plasmodium vivax malaria presenting with severe thrombocytopenia. *Journal of Tropical Pediatrics* 2005;51(2):120-1. View at Publisher, View at Google Scholar, View at Scopus.
 20. Anstey NM, Currie BJ, Dyer ME. Profound thrombocytopenia due to Plasmodium vivax malaria. *Australian and New Zealand Journal of Medicine* 1992;22(2):169-70.

How to cite this article: Prasad R, Pavan KS. A Clinical Study on Thrombocytopaenia in Viral Fevers and Malaria. *Ann. Int. Med. Den. Res.* 2018; 4(1):ME46-ME48.

Source of Support: Nil, **Conflict of Interest:** None declared