



## **Platelet count & Haematology cell counter**

During September - October 2006 there were large number of patients with fever showing thrombocytopenia. Most of these were clinically suspected to be either Plasmodium Falciparum or Dengue infection. Lot of heat was generated due to the discrepancy of the platelet count as done by the counters and also by manual methods, both direct and indirect.

As we know most of the electronic cell counters based on electric impedance technique are particle counters and these enumerate various cells including platelets by recognizing their different size. But inherent heterogeneity of the platelets and their properties like aggregation, adhesion and adsorption (Platelet agglutinins) on the surface of leucocytes are responsible for the discrepancy in their true count. Of course, aggregation can be controlled by good quality of EDTA but other properties prove hindrance to the accurate counting.

This results in to artifactual or false thrombocytopenia and so simultaneous manual count was resorted in good number of cases. We observed significant difference in the two counts (Electronic and manual) mainly due to large size of platelets (Magalo-platelets). This is conspicuous especially after transfusion of platelet concentrate in many cases of such thrombocytopenias. It is therefore suggested that before giving the report of platelet count done by the counter it may be verified by simple examination of EDTA blood smear and if a gross difference is observed it is better to repeat by manual method and then report.

Similar discrepancy is also observed in CML or CGML where large number of magalo-platelets as big as lymphocytes are

present and these escape counting as platelets and instead are counted as leucocytes by these counters. Here very high platelet count (thrombocytosis) are falsely reported as normal or only slightly elevated, while WBC are reported falsely raised.

Visa-versa (false thrombocytosis) is also reported by these counters which is usually encountered in Microangiopathic hemolytic anemia where fragments of red cells may be counted as platelets, but this produces abnormal histograms and so can be identified. However mean platelet volume (MPV) can be of some help as it varies inversely with the thrombocyte number. Its full utility is yet to be established.

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