ORIGINAL RESEARCH PAPER

Medical Science

PERIPHERAL SMEAR PLATELET COUNT AS A HIGH COST EFFECTIVE METHOD AS COMPARED TO AUTOMATED COUNT IN RURAL INDIA.

KEY WORDS:

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ABSTRACT

Background: One of the important investigation in pregnant women is platelet count which are routinely done by automated cell counters which are not available at all hospitals especially in rural India. Platelets can also be estimated from the peripheral smears, which can be easily done at any set up.

Aims & Objective: This study was conducted to compare the platelet estimation by peripheral smear method and automated method.

Materials and Methods: Platelet estimation was done in 100 patients by stained peripheral smear and automated method. Platelet counts were expressed in Mean ± SD.

Results: Platelet counts were 2.76 ± 0.71 and 2.64 ± 0.73 lacs/mm3 by peripheral smear and automated method respectively with p value 0.4.

Conclusion: There was no significant difference between two methods, hence it proves that the two methods are same. Key Words: Platelet Count; Peripheral Smear;

INTRODUCTION

Platelet count is routinely advised in fever patients. Thrombocytopenia has been more commonly diagnosed in viral and blood parasite diseases like malaria. Platelet count can be done by manual method or by automated analyzer. There are two types of manual methods traditional method and alternate estimation. Traditional method includes heamocytometry and stained peripheral smear method. Alternate method is the average number of platelets per oil immersion field (OIF) multiplied by 10000 to yield platelet count estimation per microliter.[4] One of the manual methods which can be done with minimal available equipment is the stained peripheral smear method.

MATERIALS AND METHODS: 100 patients were included in study including normal people and those who were suffering from malaria and dengu. The subjects were clinically examined. The capillary blood was drawn under complete aseptic precautions, smears were prepared immediately and stained using Leishman's stain following standard protocol. Platelets are counted in 10 oil immersion field.[1,2,3] The average number of platelets is multiplied by 10,000 and the platelet count is expressed as lacs/mm3. Data were expressed in mean ± SD. Comparison between two methods was done by Student's 't' test. A 'p' values less than 0.05 were considered as significance.

RESULTS

Platelet count by peripheral smear method was 2.76 ± 0.71 lacs/mm3 and by automated method was 2.64 ± 0.73 lacs/mm3 with p value of 0.4 (Table 1). There was no statistically significant difference between two methods. Table-1: Platelet Estimation by Two Methods Manual Method Automated Method p-value Platelet Estimation 2.76 ± 0.71 2.64 ± 0.73 0.4 Figure-1: Comparison of Platelet Counts

DISCUSSION

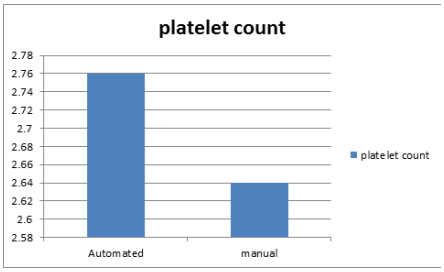
This study was conducted to compare the platelet estimation by peripheral smear method and automated method. There was no statistically significant difference between two methods when platelet count was normal. Thus our results indicate that estimation of platelets by peripheral smear method is simple, reliable, rapid, and cheaper which can be performed even at the rural set up where there is no well-equipped laboratories. This estimation can be helpful in assessing the severity of the disease and early diagnosis of thrombocytopenia, so that the patients can be referred to higher centers for the management as early as possible The estimation of platelet count from blood smears must be systematic each time the automated count is erroneous because even the most expensive and most effective machine is not able to replace human judgment. [5,6,7] Obtaining an accurate platelet count by using an automated hematology analyzer may be problematic due to particles of similar size and/or light scatter properties and due to giant platelets and platelet clumps. [8,9] Even the most expensive and accurate hematology analyzers cannot eliminate peripheral blood film evaluation, and microscopic validation of platelet counts is very much required. The validated method for manual platelet count by smear examination is not there because the methods of validation of the diagnostic tests were finalized during the second half of the 20th century and researchers are tempted to validate the new methods first, especially the less widespread.[10] Even if the manual platelet count consumes more time and requires a special microscope, which is not always available. In addition, it is worth remembering the important risk of error estimated up to 10-20% by some authors. [11]Mohamed Brahimi et al performed the estimation of platelet count from a blood smear on the basis of the red cell: platelet ratio and compared with the automated platelet count. They concluded that this estimation method is faster, taking only five minutes on average per patient, while demonstrating good precision.

CONCLUSION:

The result of this study suggest that platelet estimation by peripheral smear method is a reliable, rapid, easy and economic, it can be done even in rural setup for early diagnosis of thrombocytopenia , as it is equivalent to automated method.

Table 1

	Automated	Manual	P value
Platelet count	2.76+/- 0.71	2.64+/-0.73	P=0.04



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