LETTER TO THE EDITOR

# WHICH METHOD IS THE BEST FOR ESTIMATING PLATELET COUNT?

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To the Editor,

We red with a great interest the paper submitted by Anitha K et al. to this journal.[1] The idea "estimating platelet count from a blood smear in rural setup, in order to diagnose early thrombocytopenia in pregnancy" is very interesting, but some scientific remarks should be discussed.

First, the authors compared microscopic and automated platelet counts of 50 normal pregnant women by using "Student's t-test for independent samples" in other words they compared two means of counts. It is well known that the best way to compare two laboratory methods is to use paired t-test, regression curves and Bland and Altman's plots.[2] Secondly, platelet counts were estimated only in women with normal counts, but the proposed method must be validated on thrombocytopenic samples. Finally, Platelets are counted in 10 oil immersion field. The average number of platelets is multiplied by 20,000 and the platelet count is expressed as lacs/mm$^3$, but this method is approximative and does not give the real number of platelets.

In our laboratory, we estimate the platelet count indirectly by using the automated red blood cell (RBC) and calculating the platelet count on the basis of the red cell: platelet ratio in a stained blood film. This method, initially suggested by Thelms, was validated by Brahimi et al. on a large cohort of patients.[3] For these reasons, we aimed to verify which method is the best for estimating platelet count from blood smears.

Thirty cases of thrombopenic blood samples, reported by an impedance hematology counter, were included in the study. A blood smear was made of each sample. We excluded from the study, by examination for the blood smears, the pseudo-thrombopenic samples caused by platelet clumps, macrothrombocytes and platelet satellitism. Platelet count in each sample was estimated according to Brahimi's and Anitha's methods by three different technicians in a blinded manner then compared to the automated count.

Figure 1 and table 1 show that platelet counts calculated according to Brahimi's method are better correlated to the automated counts than those calculated by Anitha's method. The Bland and Altman statistics show that the bias from the automated counts was 8x10$^3$/µl and 6x10$^3$/µl in counts calcultated by Anitha's and Brahimi's methods respectively.

The paired t-test shows that there was no statistically significant difference between the automated method and the microscopic estimations (p>0.01).

These results suggest that the Brahimi's counting method is better correlated to the automated method with a little bias, but this later needs an automated red blood cell count in order to achieve the platelet count. Therefore the Anitha's counting method is more suitable in a rural setup, however some further adjustment are necessary in order to improve its precision.

**Table-1:** Comparison between the microscopic methods and the automated method

| | | **Anitha's method versus Automated method** | **Brahimi's method versus Automated method** |
|---|---|---|---|
| Paired *t* test results | p-value | 0.097 | 0.029 |
| | t-value | 1.71 | -2.24 |
| Bland and Altman | Bias (Mean difference) (µl) | 8 x 10$^3$ | 6 x 10$^3$ |
| | Standard deviation (µl) | 25 x 10$^3$ | 14 x 10$^3$ |
| | % of differences within the limits of agreement | 94% | 94% |
| Regression curves | Equation(*) | y = 0.498x + 29,099 | y = 0.8598x + 14,226 |
| | Coefficient of regression (r) | r= 0,596 | r=0,834 |

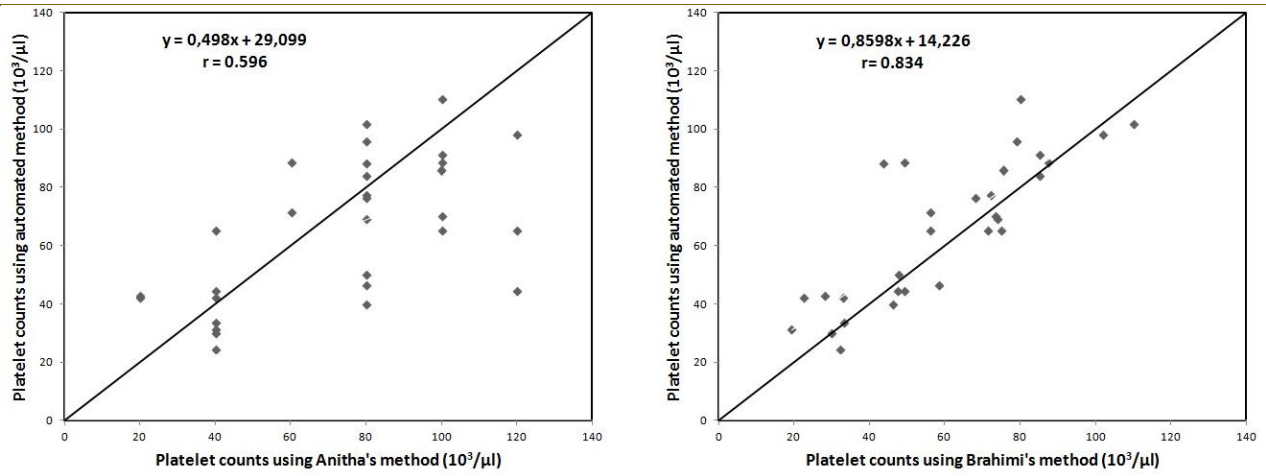


**Figure-1:** The regression analyses for the entire data set collected in our study with the line of equality

## REFERENCES


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