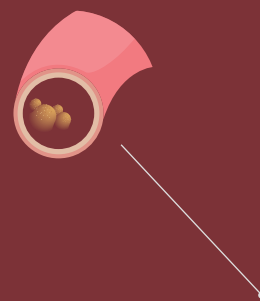
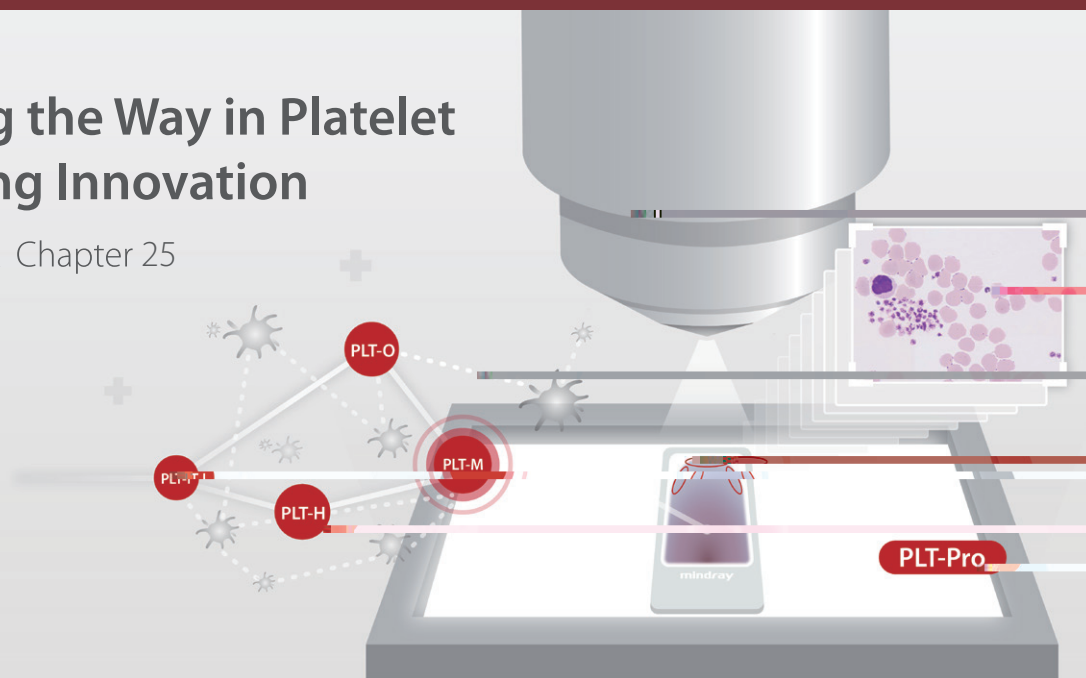


Leading the Way in Platelet Counting Innovation

HemaBook Chapter 25



This is a case of fluorescence-based false PLT count decrease caused by platelet granule deficiency. Platelet granule deficiency is observed in congenital disorders, such as the gray platelet syndrome ^[1]. The platelets and megakaryocytes have abnormal shapes and the cellular granules are markedly decreased. Since the PLT cellular granules carry a large number of nucleic materials, the lack of these granules leads to the weakening of PLT fluorescence signal, which is a possible cause of

High correlation with PLT-O

A total of 445 blood samples were selected for analysis, including samples with low PLT ($PLT < 100 \times 10^9/L$, $n = 173$), normal PLT ($100 \times 10^9/L \leq PLT \leq 450 \times 10^9/L$, $n = 243$), and high PLT ($PLT > 450 \times 10^9/L$, $n = 29$). Peripheral blood smears were analyzed using the RBC/PLT mode of MC-100i and verified by morphologists. The PLT auto-estimate was calculated using the RBC count from the hematology analyzers and the PLT/RBC ratio obtained from the MC-100i ($PLT \text{ auto-estimate} = RBC \text{ count} \times PLT/RBC \text{ ratio}$). PLT auto-estimates were compared with PLT-O measured by BC-6800Plus hematology analyzers.

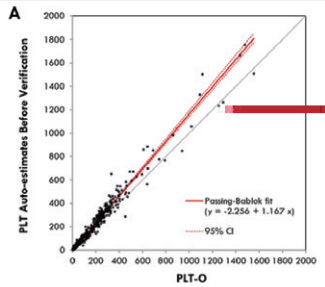


Figure 5. Comparison between PLT auto-estimates before (A and B) and after verification (C and D) and PLT-O counts from BC-6800Plus.

High efficiency

Lastly, in this study, technicians compared the time required for the analyzer and manual microscopy reviews on 110 slides. Their findings showed that the MC-100i took only 1.34 min to scan one blood smear and verification by morphologists took 0.83 ± 0.28 min. In contrast, manual microscopy review took an average of 8.54 ± 3.61 min per slide

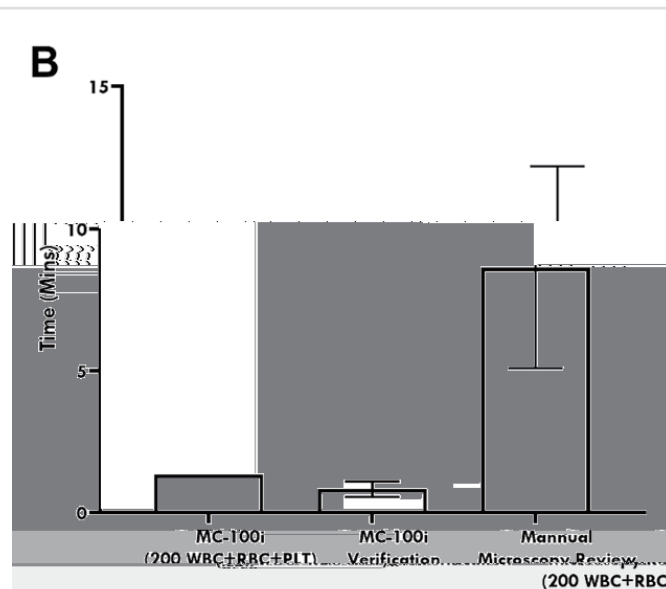


Figure 7. The time cost of blood smear examination with MC-100i scanning (200 WBC + RBC + PLT), manual verification, and manual microscopy review per blood smear is shown as mean \pm SD (n = 110).

Remarks: MC-100i is only available in China.

Summary

Taken together, the digital morphology analyzers the MC-80 and the MC-100i provide advanced solutions to the challenges in accurate PLT counting and unprecedentedly ease the manual burden of technicians or physicians in the laboratory. Besides, more investigations will be conducted in the future to explore other advanced functions of Mindray digital cell morphology analyzers in assisting with accurate diagnosis.

Reference

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