Best Practices When Evaluating Platelet Aggregation

The automated platelet evaluation is a fundamental component of the CBC and is used to diagnose and monitor platelet disorders, including thrombocytopenia and abnormalities and variability in the size of platelets. It is essential to obtain accurate platelet counts for diagnostic and therapeutic purposes, but the accuracy of automated platelet counts can be affected by platelet aggregation (clumping), which will decrease reported counts since clumps of platelets will not be counted with any automated hematology (in-house or reference laboratory) analyzers. Unrecognized falsely decreased platelet counts (pseudothrombocytopenia) can have devastating consequences for patient care, including costly ancillary diagnostics, as well as potentially unnecessary medications and treatments.

It is for this reason that every low platelet count detected by any hematology analyzer must be verified by a blood film microscopic examination. It should take less than 30 seconds total time to determine if the low platelet count is a true thrombocytopenia or an artifact due to analyzer and/or sample collection issues.

One can quickly and easily detect platelet clumps by examining the feathered edge of the blood film. In most situations, the clumps of platelets will collect along with any other large components of the blood. In addition, in the monolayer of the blood film, you should see a minimum of 8 to 10 platelets per 100x oil objective field of view when thrombocytopenia is not present. A crude estimate of platelet numbers can be determined when there is no clumping by multiplying the average number of platelets observed in a 100x oil objective field of view by 20,000. Although not as precise as an automated count, this method gives an approximate guide to the platelet count and should roughly correlate with the analyzer count. While impossible to accurately determine the platelet count when platelet clumping is noted on a blood film, it is usually assumed that the platelet count is likely to be adequate if platelet clumping is present. For a more precise determination, an additional blood sample may be necessary.

Additional information available at:

References: