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Platelet counting by the Coulter LH 750, Sysmex XE 2100, and Advia 120: a comparative analysis using the RBC/platelet ratio reference method

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We compared the accuracy and precision of the impedance platelet counts generated by the Beckman Coulter LH 750 and the Sysmex XE 2100 and the optical platelet counts produced by the Advia 120 and the Sysmex XE 2100 with flow cytometric reference platelet counts. Samples analyzed had platelet counts less than 150 x 10(3)/microL (150 x 10(9)/L) with a platelet flag or less than 75 x 10(3)/microL (75 x 10(9)/L) on the Sysmex SE 9500. The 105 samples were run sequentially through each analyzer. Anti-CD41 and anti-CD61 monoclonal antibodies were used for flow cytometric determination of the reference platelet count by the RBC/platelet ratio method. The Beckman Coulter and the Sysmex impedance platelet counts showed better correlation with the reference method than the optical platelet counts by the Advia and the Sysmex. At platelet transfusion thresholds of 10 and 20 x 10(3)/microL (10 and 20 x 10(9)/L), the precision of the impedance methods was somewhat better than that of the optical methods. Current methods of optical platelet counting may not be superior to impedance platelet counts for all patient populations.

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