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Accuracy of platelet counting haematology analysers in severe thrombocytopenia and potential impact on platelet transfusion.

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Although haematology analysers provide reliable full blood counts, they are known to be inaccurate at enumerating platelets in severe thrombocytopenia. If the thresholds for platelet transfusion, currently set at 10 x 10(9)/l, are to be further reduced, it is vital that the limitations of current analysers are fully understood. The aim of this large multicentre study was to determine the accuracy of haematology analysers in current routine practice for platelet counts below 20 x 10(9)/l. Platelet counts estimated by analysers using optical, impedance and immunological methods were compared with the International Reference Method for platelet counting. The results demonstrated variation in platelet counting between different analysers and even the same type of analyser at different sites. Optical methods for platelet counting on the XE 2100, Advia 120, Cell-Dyn 4000 and H3* were not superior to impedance methods on the XE 2100, LH750 and Pentra analysers. All analysers except one overestimated the platelet count, which would result in under transfusion of platelets. This study highlights the inaccuracies of haematology analysers in platelet counting in severe thrombocytopenia. It re-emphasizes the need for external quality control to improve analyser calibration for samples with low platelet counts, and suggests that the optimal thresholds for prophylactic platelet transfusions should be re-evaluated.

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