Spurious rise in the automated platelet count because of bacteria

N Kakkar

The era of automation in haematology, although improving the accuracy and precision of results, has also introduced the laboratory haematologist to a vast array of spurious parameters. The identification of these results is important so that inappropriate management decisions are avoided. The case presented here illustrates a spuriously raised automated platelet count resulting from bacterial overgrowth in the blood sample.

The use of automated analysers in haematology laboratories is now the rule rather than the exception. These instruments have enhanced the precision of results and, with optimal quality control measures in the laboratory, have improved the accuracy of tests. However, there are a variety of conditions where automated parameters may be fictitious. Such situations demand careful attention, because vital management decisions may be taken based on these erroneous results. Both the laboratory operators of these instruments and clinicians must be aware of the possibility of spurious data from automated laboratories. A case of an artefactual rise in the automated platelet count is presented here.

"The use of automated analysers in haematology laboratories is now the rule rather than the exception."

DISCUSSION

Data from modern automated haematology analysers, if backed up by good quality control measures, are generally considered reliable, although spurious results may be generated at times. Among these, falsely high platelet counts may have important clinical consequences, possibly also masking severe underlying thrombocytopenia. Thus, all unexpectedly high platelet counts must be verified by examination of the blood smear by an experienced morphologist. Spuriously raised platelet counts can be seen in conditions with pronounced microcytosis (haemoglobin H disease), microangiopathic haemolytic anaemia, burns, leukaemia, and lymphoma. The presence of bacteria in the peripheral blood smear has been reported on many occasions in the literature.

Various bacteria have been seen in blood smear examinations, and at times the peripheral blood smear has been the first clue to the presence of infection in patients. However, there are fewer reports on spuriously raised automated platelet counts as a result of bacteriaemia. Gloster et al reported two patients with positive blood cultures for *Escherichia coli* and *Klebsiella pneumoniae* who also had bacteria seen in their peripheral blood smears. Their platelet counts
generated by the Ortho-ELT-8 machine were spuriously raised.8

When present, true bacteraemia usually results in a small number of bacteria in the blood smear, with an intraneutrophilic location, unlike the case presented here which had numerous clumps of bacteria. This case draws attention to the importance of pre-analytical variables with respect to laboratory testing. In the case of an anticipated delay in the processing of blood samples, refrigeration at 4 °C greatly improves the stability of test results, a recommendation that was not followed in this case.

"Samples with unexpected blood counts in relation to the clinical setting or those that generate specific flags necessitate a careful review of the blood smear"9

This case also highlights the contribution that the now often ignored blood smear can make to detecting abnormalities that the much heralded chip may miss at times. High output laboratories with modern automated haematology analysers have been devising methods to lessen the need to review blood smears. This seems a natural consequence of the advanced technology that these analysers use. However, it must be remembered that samples with unexpected blood counts in relation to the clinical setting or those that generate specific flags necessitate a careful review of the blood smear. Ignoring this could lead to missing out on vital, clinically useful information.

Standard operating procedures for automated analysers must include definite guidelines on situations in which a blood smear review is mandatory. This will aid in reducing spurious results.

To conclude, pre-analytical variables need careful attention when investigating aberrant results that the laboratory haematologist encounters.

Correspondence to: Dr N Kakkar, Department of Pathology, Christian Medical College and Hospital, Ludhiana-141 008, Punjab, India; n_kakkar@satyam.net.in

Accepted for publication 20 April 2004

REFERENCES