Abstract

Koblasa,Vladimír -   Comparison of control measurements on various types of haematology analyzers used by ÚKBLD CHLTC at University Hospital in Prague

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Blood cell count is essential testing method in hematology, where it is necessary to ensure properquality control.

Aim of this study was to compare the results of measurement control materials with defined parameters and the same samples at different haematological analyzers to obtain evidence for the expression of measurement uncertainties.

There are used more types of blood analyzers in ÚKBLD CHLTC at University Hospital in Prague, which operate on different principles. For comparsion were selected analyzers using the impedance working principle, where individual blood cell passes between two electrodes controlled by low voltage. Variation of this voltage is recorded and accurately defined for each type of blood cells. It was also chosen analyzer that works with optical detection. Analyzer illuminates the individual blood cell by light beam. A cell that enters into the path of light rays, reduce its optical density incident on the photocell. The change of the light density causes variation of low voltage and this variation is precisely defined for each type of blood cells.

As software for recording the results,I used Excel spreadsheet that its calculating functions for my measurements quite sufficient. The measured results were compared with the range recommended by the manufacturer. Values for all levels of control materials meet the recommended range.

Finally report from this study is, that comparison of quality control measurements on various types of analyzers used by department of ÚLBLD CHLTC is much less difference than those specified for each unit standards. Due to these results we can say, that these standards could be more stringent in some laboratories.

Keywords: analyzer, quality control measurements, blood cells, erythrocytes, leukocytes, platelets, morphology