Star (ifc)-flagged Leukocytosis as Indicator of Interfering Factor in Automatic Hematology Analyzer

Abstrak:

Leukocytosis is a condition in which there is an increasing number of white blood cell count in the peripheral blood compared to the normal range based on age. Several conditions can amplify leukocyte count from haematological auto analyzers, not only those which correspond to the pathologic and physiologic condition, but also with other factors, such as diluent and haematological auto analyzer’s methods. The information about these factors should be evaluated to lessen errors in the patient’s diagnosis and therapy. This case report describes a leukocytosis in a 35-day old baby boy, diagnosed as duodenal obstruction, admitted in Paediatric Surgery Department, Hasan Sadikin Hospital, Bandung. Discrepancies occurred in this patient’s leukocyte count with some different haematological auto analyzers. The leukocyte count from the auto analyzer by impedance method and ammonium salt diluent was 129,200/mm³ which was indicated by a star-flagged (ifε), while from the auto analyzer with light scatter method and anhydrous sodium sulphate and sodium chloride diluent was 9,200/mm³, from manual count by the counting chamber with Turk diluent was 14,200/mm³ and the estimation by peripheral blood smear was 7,000–10,000/mm³. False leukocytosis by auto analyzer with impedance method was caused by the limitation of the analyzer’s method and by the erythrocyte lysine reagent (diluent) using ammonium salt. As investigated in this case, the interferences were thought as being caused by the Lyses-resistant Red Blood Cells, thus the non-lysed/lyses cells which were enlarged in size were identified as leukocytes other than erythrocytes. It can be that the white blood concluded cell count examination which is indicated by star-flagged (ifε), or white blood cell count >100,000/mm³ must be confirmed by manual examination (counting chamber and peripheral blood smear) or by another haematological auto analyzer method that has a different and more potent diluent.

Keyword:

Leukocytosis with star-flagged (ifε), interfering factor, hematology analyzer