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A SLIDE TEST AND IMAGE ANALYSIS FOR THE DETECTION OF INFLAMMATION AND ITS INTENSITY IN CHILDREN WITH FEBRILE DISEASE

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Background: In previous studies it was shown that leukocyte aggregation increased during bacterial infection but not in viral infection and this discrimination can be demonstrated by a simple blood slide test. Recently we introduced a slide test and image analysis to reveal the presence of inflammation and to assess its intensity. It is based on the observation in adults, that the degree of erythrocyte aggregation correlates significantly with the erythrocytes sedimentation rate, that the number of the leukocytes on the slide correlates significantly with the WBC count, and that the leukocyte aggregation is a marker of the intensity of the inflammatory response.
Objectives: To confirm the applicability of this method in a group of children with infection \inflammation.
Methods: Consecutive children aged 1 week to 14 years who presented to a pediatric emergency room with an acute febrile condition were recruited. One drop of blood was applied to a glass slide, and then scanned and analyzed by using an image analyzer.
Results: 103 children with various infectious conditions were included. A significant correlation was noted between the degree of erythrocyte aggregation and the ESR ($r=0.65$ $p<0.0001$), and between the slide leukocyte number and the WBC count ($r=0.84$ $p<0.001$).
Conclusions: This slide test and image analysis is a simple diagnostic tool to determinate the intensity of the acute phase response and to distinguish between viral and bacterial infection in children.