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CLINICAL USE OF A MODIFIED FLOW CYTOMETRY METHOD FOR THE ANALYSIS OF A SELECTED URINE PARTICLE IN URINE SAMPLES COLLECTED FROM HOSPITALIZED PATIENTS

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Statement of the problem: Urinalysis, alongside general blood tests, is one of the most frequently screening tests in the clinical laboratory. Urine test has a key role in diagnosing and monitoring nephrological and urological disorders, but also allows monitoring of hemostasis of the whole organism. Routine urinalysis considered as sediment analysis consists in determining the content of morphological elements such as WBC, RBC, yeasts, casts etc. Urine culture represents a gold standard for the diagnosis of urinary tract infections (UTI) also basing on the assessment of the presence of bacterial cells in urine samples. Sysmex UF-4000 analyzer delivers the possibility to compare the urinalysis test and microbiological examination using the modified flow cytometry method. This method (time about 5 minutes) allows for the quantitative determination of cells and formed particles in the urine sample.

Material & Methods: 1386 consecutive urine samples were analyzed. Analyzer required 2 ml urine as a minimum volume but aspirated only 450 µl. Each element passing individually by the liquid stream was analyzed by the optical system, registered and showed as an individual event on dot plots. Opportunity to rule out the negative microbiology urine and preliminary bacteria Gram '+ve' and Gram '-ve' groups were tested. Two cutoff values were set for bacteria, the first 58/µl and second one 300/µl depending on clinical needs. Correspondingly, positive samples were 707 (51%) and for the second cutoff 466 (34%). Additionally, appearance and amount of WBC can be useful to approvel the infection process. Classic microbiology doesn't provide such a possibility.

Conclusion & Significance: UF-4000 used for microbiological diagnostics provided new analytical features: improving the efficiency of the routine microbiology, excluding bacterial UTI, reduced unnecessary urine culture, provides reliable results in a shorten turn-around time and could help clinicians to determine antibiotic therapy if it is necessary.

Biography

Magdalena Szmulik work as a Product Specialist in Sysmex Poland and trained in an interpretation of hematology and urine test result. She has a background in virology and molecular method by working in a Military Blood Donation Center in Warsaw. She has studied clinical laboratory science and has completed her MSc from the Medical University of Warsaw. She has created and developed students scientific association– *Studenckie Towarzystwo Diagnostów Laboratoryjnych*. She is interested of public health and an opportunity to develop health profilactic based on laboratory medicine.

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