Urine sediment examination: A comparison between the manual method and the iQ200 automated urine microscopy analyzer

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Abstract

Background: Microscopic examination of the urine sediment is an essential part in the evaluation of renal and urinary tract diseases. Traditionally, manual microscopic techniques have several methodological steps that may contribute to imprecision, inaccuracy, and are time-consuming. Recently, the iQ200 automated urine microscopy analyzer has been introduced to analyze the unspun urine, thereby improving accuracy, precision and throughput.

Methods: In this study, we compared its performance with manual routine slide and chamber counts. Fresh urine samples were obtained from 400 subjects.

Results: The reference values of white blood cells, red blood cells and squamous epithelial cells obtained by the above methods were not significant difference when the results reported as cells per high-power field. For the specimens of patients (n =280), a significant correlation was found when the iQ200 results of cellular elements were compared with those obtained from manual microscopy. No significant difference was found when the post-review results of the iQ200 were compared with the chamber count. However, the presence of casts, crystals, bacteria, and budding yeast needs further characterization under the microscope.

Conclusions: There is substantial agreement between the iQ200 and manual microscopic methods. The iQ200 provides for a rapid turnaround time.

Keywords: Urine sediment; Automated urine microscopy analyzer; Counting chamber