

ABSTRACT

Background: Urinalysis is a routine examination of urine in a clinical laboratory that is carried out macroscopically, urine chemistry and microscopically (urine sediment). Urine sediments that are often found are erythrocytes and leukocytes. Until now, the standard for examining urine sediment uses a manual microscope. With the advancement of technology, visualization-based urine sediment examination has been developed, one of which is the Cobio S50 fully automated urine sediment Analyzer where this tool is equipped with AIEM which is able to identify, label and count each particle in a urine sample. This tool has not been widely researched because this tool is relatively new and not many laboratories use it, so there needs to be research on this tool which is compared to a manual microscope with urine sediment parameters examined for erythrocytes and leukocytes.

Objective: This study aims to determine the difference in the number of erythrocytes and leukocytes in urine sediment using the Cobio S50 fully automated urine sediment analyzer and manual microscope.

Method: This type of research is comparative with a quantitative approach. The design of this study is Cross Sectional. The inclusion criteria for this study were urine when patients with diabetes mellitus, sample volume >12 mL and samples <1 hour after being collected. The primary data obtained were analyzed descriptively to find the difference in the average results of the two tools and statistical analysis using the Wicoxom test.

Results: The results of the study showed that the difference in the average and percentage of the difference in the number of erythrocytes and leukocytes using the Cobio S50 fully automated urine sediment analyzer and manual microscope were 6.3 /15hpf with a percentage of 30% and 7.23 /15hpf with a percentage of 27%, respectively. The results of the Wicoxom statistical test obtained a significant value of 0.000.

Conclusion: There are differences in the number of erythrocytes and leukocytes in urine sediment using the Cobio S50 fully automated urine sediment analyzer and manual microscope.

Keywords :Urine sediment, erythrocytes, leukocytes, Cobio S50 fully automated urine sediment analyzer, manual microscope.

ABSTRAK

Latar Belakang: Urinalisis merupakan pemeriksaan urine rutin di laboratorium klinik yang dilakukan secara makroskopis, kimia urine dan mikroskopis (sedimen urine). Sedimen urine yang sering ditemukan yaitu eritrosit dan leukosit. Hingga saat ini standar baku pemeriksaan sedimen urine menggunakan mikroskop manual. Semakin berkembangnya kemajuan teknologi, telah dikembangkan pemeriksaan sedimen urine berbasis visualisasi, salah satunya alat Cobio S50 *fully automated urine sediment Analyzer* dimana alat ini dilengkapi dengan AIEM yang mampu mengidentifikasi, memberi label dan menghitung setiap partikel dalam sampel urine. Alat ini belum banyak dilakukan penelitian karena alat ini tergolong baru dan tidak banyak laboratorium yang menggunakannya, sehingga perlu adanya penelitian tentang alat tersebut yang dibandingkan dengan mikroskop manual dengan parameter sedimen urine yang diperiksa eritrosit dan leukosit.

Tujuan: Penelitian ini bertujuan untuk mengetahui perbedaan jumlah eritrosit dan leukosit pada sedimen urine menggunakan alat Cobio S50 *fully automated urine sediment analyzer* dan mikroskop manual.

Metode: Jenis penelitian ini adalah komparatif dengan pendekatan kuantitatif. Desain penelitian ini adalah Cross Sectional. Kriteria inklusi penelitian ini yaitu urine sewaktu pasien diabetes melitus, volume sampel >12 mL dan sampel <1 jam setelah ditampung. Data primer yang diperoleh dianalisis secara deskriptif dicari selisih rerata hasil kedua alat dan analisis statistik menggunakan uji *wicoxom*.

Hasil: Hasil penelitian menunjukkan bahwa Selisih rerata dan persentase selisih jumlah eritrosit dan leukosit menggunakan alat Cobio S50 *fully automated urine sediment analyzer* dan mikroskop manual masing-masing sebesar 6,3 /15hpf dengan persentase 30% dan 7,23 /15hpf dengan persentase 27%. Hasil uji statistik *wicoxom* didapatkan nilai signifikan 0,000.

Kesimpulan: Ada perbedaan jumlah eritrosit dan leukosit pada sedimen urine menggunakan alat Cobio S50 *fully automated urine sediment analyzer* dan mikroskop manual.

Kata Kunci: Sedimen urine, eritrosit, leukosit, alat Cobio S50 *fully automated urine sediment analyzer*, mikroskop manual.